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Towards a Sustainable Supply Chain

Developing Supplier Sustainability Evaluation as Part of Supplier Evaluation Process

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Preface

The process of conducting this study in such a limited timeframe has been quite daunting. I'm amazed at my own ability to actually accomplish it. However, the process has been extremely rewarding and educational.

The realization of the Thesis would not have been possible if not for the excellent guidance of my school throughout the journey. For this I would like especially to thank my Thesis instructor Dr Thomas Rohweder. His feedback and validation of my ideas was invaluable. Additionally, my deepest gratitude goes to Zinaida Grabovskaia, for her feedback and support throughout the writing process. I value the time they took to guide and instruct me throughout the project. The discussions we've had with all the faculty members, have provided valuable lessons for me.

I would also like to thank the case company for introducing such an interesting topic and allowing me to work on this project. The project has offered deep insight to our operation and, at the same time, been an inspiring opportunity to develop myself professionally. Moreover, I would like to thank Kaisa for the interesting discussion, support and guidance that she offered. And for sharing my headache when I struggled in the process. Finally, I would like to thank all the informants at the case company who participated in this project. Without your contributions, the project would not have been possible.

I'm thankful for my mother for her constant support. Kiitos äiti! In addition, I'm grateful for having Muugle in my life as well as all my other wonderful friends. Thanks to all of you for listening my whining and for cheering me on when the project felt overwhelming. The biggest thanks I owe to you, Robert. I could not have accomplished any of this if it hadn't been for your trust in me, your understanding, constant support, and encouragement. Thank you!

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This Thesis focuses on supplier sustainability evaluation. The objective of this Thesis is to propose a supplier sustainability process that can be used in the case company as part of the current supplier evaluation process. As part of this supplier sustainability process, this Thesis creates and proposes a supplier sustainability evaluation template to be integrated in a wider, currently applied supplier evaluation process.

This Thesis first evaluated the current practices for supplier evaluation as conducted by the headquarters, as well as analyzed the current supplier evaluation in both business units of the case company. As a result, these processes were mapped and different practices compared. The proposal for supplier sustainability evaluation combines the preliminary findings from the current practices at the case company with the conceptual framework of best practice from literature, and further builds from them based on stakeholders suggestions.

The outcome of this Thesis is a supplier sustainability process that is integrated in the wider, currently applied supplier evaluation process at the case company. As a practical implication, a template for supplier sustainability evaluation is proposed. This proposal offers the case company concrete measures to move towards its targets of being a sustainability leader in its industry by 2020.

Keywords	sustainability, supplier sustainability evaluation, supplier sustainability evaluation template

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Acronyms

BU1	Business Unit 1
BU2	Business Unit 2
CF	Conceptual Framework
CS	Case Study
CSA	Current State Analysis
CSR	Corporate Social Responsibility
DSSI	Dow Jones Sustainability Index
GPC	General Purchase Conditions
GRI	Global Reporting Initiative
HOP	Head of Procurement
HSE	Health, Safety, and Environment
HQ	Headquarters
ICC	International Chamber of Commerce
ILO	International Labor Organization
IP	Intellectual Property
ISO	International Organization for Standardization
KPI	Key Performance Indicator
LCA	Life-cycle Assessment
LTIF	Lost Time Injury Frequency
NGO	Non-governmental Organization
OTD	On Time Delivery
PE	Purchasing Engineer
PPE	Personal Protective Equipment
QA	Quality Assurance
SC	Supply Chain
SCM	Supply Chain Management
SD	Sustainable Development
SE	Supplier Evaluation
SRM	Supplier Resource Management
SS	Supplier Sustainability
SSE	Supplier Sustainability Evaluation
UN	United Nations

1 Introduction

Sustainability is becoming a more important factor in the processes of organizations. In a global environment, it is not enough to increase the level of sustainability of internal operations. Instead, the importance of efficient supply chain management continues to increase. In supply chain management, efforts to create sustainable business practices concentrate more on the value chain, extending from upstream to downstream in the chain. In addition, new requirements from local and global legislation guide organizations to improve their processes and demand the same from their suppliers. In order to monitor current efforts and practices of the suppliers, a formal process for evaluating sustainability must be in place. This thesis studies how a supplier sustainability evaluation can be done and integrated into a supplier evaluation process at the case company.

1.1 Key Concepts

Developing sustainability in a supply chain is a challenging effort, including but not limited to human rights, labor, environmental aspects, and anti-corruption. Supply chain sustainability is defined by the United Nations as:

> *Supply chain sustainability* is the management of environmental, social and economic impacts, and the encouragement of good governance practices, throughout the lifecycles of goods and services. The objective of supply chain sustainability is to create, protect and grow long-term environmental, social and economic value for all stakeholders involved in bringing products and services to market.
>
> (United Nations Global Compact. 2010:5)

Sustainability in this study means environmental, health and safety issues, human rights issues, and compliance issues. The other aspects of sustainability are important in the case company but are not included in the sustainability evaluation of suppliers at this stage, and are thus excluded from scope.

1.2 Case Company Background

The case company of this study is a global process performance provider. The case company has customers in mining, oil and gas, and the aggregates industries. The company operates in 50 countries, and it employs more than 13 000 employees globally. The company is divided into two business units that operate in their respective fields. Both of these business units operate globally and have hundreds of local and global suppliers and sub-contractors.

The case company recognizes that sustainability can create competitive advantage. Additionally, developing sustainability creates new opportunities and aids in managing risks. The case company has clear guidelines in place for its internal operations when it comes to occupational safety. Targets have been set for emission reduction, waste reduction, and water reduction as well. In order to fortify this, the case company has set a goal of being the leader in sustainably in its industry.

1.3 Business Challenge

The case company concentrates on its core competencies and has thus outsourced many functions. These functions can be highly risky and consist of operations that can inflict harm to the environment and personnel. It is seen as important in the case company to ensure that its sustainability values are promoted throughout the supply chain.

In spite of being a leading technology and service provider, the case company lacks a way in which it evaluates its new and current suppliers for their sustainability. Currently, efforts for creating a supplier evaluation process have been initiated by headquarters. Supplier sustainability audits have been conducted by a third party as a pilot process. High risk suppliers have been recognized and categorized based on the case company's yearly spend. This ensures the sustainability of the entire supply chain. However, these supplier sustainability evaluations have been conducted by headquarters only for a few suppliers. Therefore, the case company considers current efforts to be somewhat inadequate and wishes to achieve more tangible results in mapping out the entire supplier network to evaluate its sustainability.

Thus, the case company has set a target to ensure supplier sustainability and implement the supplier evaluation (SE) process in each of the two business units. A key focus is to improve the engagement of suppliers in order to develop their sustainability performance. The eventual target is to quantitatively report sustainability performance for the supply chain.

1.4 Objective and Scope

Accordingly, the objective for this Thesis is (a) to propose a supplier sustainability (SS) process that should be used in the case company, (b) propose a supplier sustainability evaluation (SSE) process to be applied to existing suppliers and integrated into the current SE processes at the case company, and (c) create a SSE template to be used as a part of the of the SE process.

The requirements for evaluating sustainability of the suppliers comes from legislation. In addition, there is a growing trend from the customer side to require evidence of supplier sustainability. By conducting evaluations and audits, the case company is be able to manage risk that may arise to the brand or the organization if the sustainability requirements are not met. In many cases deficiencies in, e.g., health, safety, and environment (HSE) issues result from a lack of awareness, and thus can be easily fixed once recognized. Therefore, this Thesis aims to clarify the concept of supplier sustainability and identify criteria for supplier sustainability in the case context.

The outcome of this Thesis is a proposal for SSE process to complement the existing processes and a template that can be included in the wider SE process at the business units of the case company.

This study is divided into seven sections. Section one introduces the case company, business challenge, objective and outcome of this Thesis. Section two introduces the research methodology and data collection methods. Additionally, section two introduces the validity and reliability plan of this Thesis. Section three describes and analyzes the current state at the case company. Section four discusses the best practice for supplier sustainability evaluation. Section five presents the initial proposal for supplier sustainability which is co-created with the key stakeholders. Section six discusses feedback re-

ceived for the initial proposal and presents a final proposal. Furthermore, recommendations for further action for the case company are suggested and an action plan for implementing the proposal is presented. Section seven summarizes this Thesis. Additionally, this Thesis is evaluated in section seven based on its validity and reliability and by correlation of the outcome to the objective.

2 Method and Material

This section describes the research methodology and material used in this study. First, the research approach is described. Second, the research design is explained. Third, data collection and analysis is explained, followed fourth by the validity and reliability plan.

2.1 Research Approach

Case study can be selected as a research approach when examining contemporary events taking into account observations of the events as well as interviewing the persons involved in the event. Case study considers the phenomenon in its context, with all the elements of the event, i.e., documents, artifacts, interviews, and observations as a part of the techniques used when conducting the research. Additionally, a specific character of a case study is when the researcher has very little or no control to all of the process in question. (Yin, 2003: 4-8)

There are many different approaches to conducting research. In order to determine a research strategy, the type of research question needs to be identified (Yin, 2003:7). Case study can be selected as the research method especially when the research question is formulated in the form of “how” or “why” questions. The case study approach can be chosen to answer these types of questions due to its exploratory nature. Although case study as a research method is linear, it is iterative at the same time. Case study approach aims to understand and examine the case, and the research question is selected accordingly. The case is examined in the context of its historical, cultural, social and economic relationships. Case study can be selected to present a complex business issue in an understandable manner. The focus of a case study is to provide detailed and comprehensive information analyzing different data sources in the context of the case. (Eriksson and Kovalainen, 2008: 115-117)

As an approach, case study combines data collected from different data sources. These methods are usually archives, interviews, questionnaires, analysis of documentation, and observations. Some practitioners employing the case study method rely solely on qualitative data. (Eisenhardt, 1989: 534-544) Even though the case study approach does

not rely solely on qualitative data, because all date is gathered into the data collection, qualitative data is still primary (Gillham, 2010:10).

As the author of this study is relying on observations rather than actively participating in the implementation of the final proposal, this goal supports the selection of the research approach. For this reason, defining the research question is one of the most important steps when conducting research. In this thesis the research question is formulated as:

> *How should supplier sustainability evaluation be done and integrated in the current supplier evaluation processes at the case company?*

The research question in this Thesis has been formulated in the form of “how” and thus the selection of case study research approach is appropriate. The research design presented in the next section illustrates the linear structure of the case study approach.

2.2 Research Design

The research design used in this study is illustrated in Figure 1 below. It shows the steps taken to conduct the study. Additionally, Figure 1 explains the purpose of each step and presents the outcome. Furthermore, the illustration shows the data collection rounds conducted in various steps of the study.

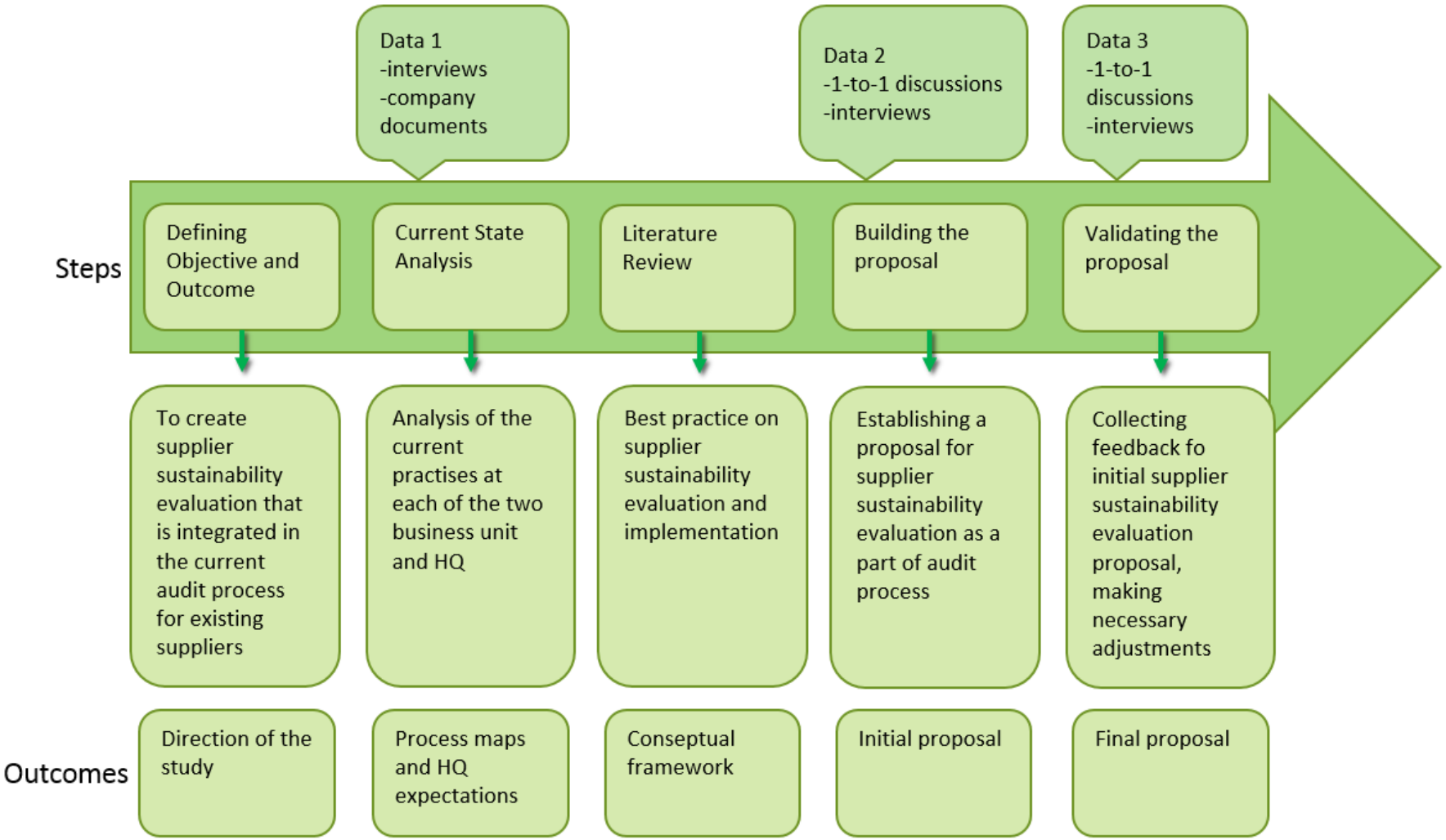


Figure 1. Research design of this Thesis.

As seen from Figure 1 illustrating the research design, this study aims to build a supplier sustainability evaluation template for the case company. The study starts with identifying a business challenge. At the next stage, the objective of this Thesis is defined. After defining the objective, the outcome of this Thesis is defined. This determines the direction of the Thesis. At the next stage, the current state analysis is conducted to understand the current procedures in each of the two business units of the case company and at Headquarters. The outcome of this are the process maps of the current processes of supplier sustainability evaluations in each of the business units and at headquarters. Furthermore, current state analysis results in expectations of headquarters regarding supplier sustainability evaluation.

After conducting the current state analysis, best practice from the relevant literature is searched. This forms the conceptual framework of this Thesis. At the next stage, the findings from the current state analysis are combined with the conceptual framework. Data is collected from key stakeholders, and together all these contribute to build the proposal of supplier sustainability evaluation template. After this, the proposal of supplier sustainability evaluation template is then presented to the key stakeholders after which the proposal is revised according to lessons learned and feedback received. Based on these, a final proposal of the supplier sustainability evaluation is formulated.

2.3 Data Collection and Analysis

This study utilizes the data gathered in three different data collection rounds. “Data 1” is gathered to depict the current state of the case company. “Data 2” is collected to build the proposal. “Data 3” incorporates the needed adjustments to the proposal, i.e., validation of the proposal. Table 1 below presents an overview of the different data stages and points to the section where the data is utilized.

Table 1. Data collection stages.

Data Stage	Method	Goal	Section
Data1	Interviews Discussions Company documents	Current process, mapped	Section3, CSA
Data2	Interviews Discussion	Input for the proposal building	Section 5, proposal
Data3	Interviews Discussion	Feedback for the final proposal	Section 6, Final proposal

As seen from Table 1, data is collected in three stages. Data 1 is collected utilizing interviews, discussion and company documents. This data is presented in section 3 of this Thesis. Data 2 is collected from interviews and discussions. This data is utilized in section 5, proposal building. Data 3 is collected from interviews and discussions, which is utilized in final proposal in section 6. Data collected in different data collection stage is specified in Tables 2, 3, and 4 below.

Table 2. Data 1 collection for the current state analysis.

Data Stage	*Participant*	*Date and Duration*	*Documentation*	*Topics Discussed*
Data1a	Head of Sustainability, HQ	02.11.2015 duration 90 minutes	Audio recorded, Field notes (appendix 2)	-description of current supplier sustainability evaluation practices -strengths of the current evaluation practice -weaknesses of the current evaluation practice -improvement opportunities -HQ expectations
Data1b	Head of Sustainability, HQ	11.01.2016 duration 60 minutes	Audio recorded, Field notes (appendix 2)	-current sustainability practice important areas of sustainability in the case company -future expectations of sustainability in the case company
Data1c	Head of Sustainability, HQ	09.02.2016 duration 30 minutes	Audio recorded, Field notes (appendix 2)	-goals for the study -sustainability practice in the case company
Data1d	Head of Sustainability, HQ	24.02.2016 duration 60 minutes	skype meeting, Field notes (appendix 2)	-company internal documents -current practice of sustainability -future expectations regarding sustainability practices
Data1e	Supplier Quality Manager, BU1	08.02.2016 duration 90 minutes	Audio recorded, Field notes (appendix 2)	-description of current supplier sustainability evaluation practices -strengths of the current evaluation practice - weaknesses of the current evaluation practice -improvement opportunities
Data1f	Supplier Quality Manager, BU1	16.02.2016 duration 70 minutes	Audio recorded, Field notes (appendix 2)	-process map of the current supplier evaluation process

Data1g	Supplier Quality Manager, BU2	09.02.2016 duration 80 minutes	Audio recorded, Field notes (appendix 2)	-description of current supplier sustainability evaluation practices -strengths of the current evaluation practice -weaknesses of the current evaluation practice -improvement opportunities
Data1h	Head of Sustainability, HQ SVP Global Procurement, BU2	05.04.2016 duration 50 minutes	Audio recorded, Field notes (appendix 2)	-current supplier evaluation process used in different locations

As seen from Table 2, data collected in stage 1 is utilized in the current state analysis and consists of interviews and analysis of the internal company documents. As seen from Table 2, similar topics are discussed with department heads from the headquarters, business unit 1 (BU1), and business unit 2 (BU2). These interviews lasted between one and two hours. Questions used in the interviews and discussions are listed in Appendix 1. These discussions and interviews were recorded, notes were taken during the interviews and discussions, and immediately after the meeting transcribed into field notes, shown in Appendix 2. In addition, clarification to the current practices in supplier evaluation was asked by email.

Interviews

This Thesis is a qualitative study. One form of qualitative analysis is interviews, which is utilized in this study as its primary data source. The interviews are conducted with the key stakeholders of the case company. The interviews were conducted mainly face-to-face, recorded and documented in field notes during the interview. The notes from the interview were translated by the author when the interview was conducted in a language other than English, and submitted for checking to the interviewee prior to being utilized in this study. Table 2 below shows the data used for conducting Data collection 1. In addition to interviews, secondary data is utilized. The secondary data utilized is mainly the company internal documentation.

Internal documentation

In addition to the interviews, documentation of the current supplier sustainability process used is utilized in order to formulate an extensive view of the current state of the case company. The company documents utilized are presented in Table 3 below.

Table 3. Company documentation used for the current state analysis.

	Name of the Document	*Description*
A	HQ current process description	current supplier sustainability evaluation process
B	BU1 current process description	current supplier sustainability evaluation process
C	BU2 current process description	current supplier sustainability evaluation process
D	Code of Conduct	minimum safety standards
E	Sustainability Manual	requirements for suppliers
F	Supplier Sustainability Evaluation	criteria for new supplier sustainability evaluation
G	BU2 Supplier self-assessment form	current sustainability criteria in use
H	Group HSE policy	internal HSE requirements
I	Check list for supplier sustainability	themes previously considered

Table 3 above shows the internal documents that were utilized to form a comprehensive understanding of the case company current procedures. The case company has several internal documents concerning sustainability. All of these documents were reviewed. These documents are listed in Table 3. From these, an understanding of the current practices was formed. These company documents made a valuable source of data for the final proposal.

The construction of the proposal involved inquiry to key stakeholders in order to gather input and receive feedback. This input was considered as Data collection stage 2 and is presented in Table 4 below.

Table 4. Data 2 collection for building the proposal.

Data Stage	*Participant*	*Date and Duration*	*Documentation*	*Topics Discussed*
Data 2a	Head of Sustainability, HQ	30.03.2016 duration 70 minutes	Audio recorded, Field notes (appendix 3)	Building the draft SSE template
Data 2b	Manager, Quality and HSE, BU1	14.04.2016 duration 50 minutes	Audio recorded, Field notes (appendix 3)	Building the draft SSE template
Data 2c	Supplier Quality Manager, BU1	19.04.2016 duration 60 minutes	Audio recorded, Field notes (appendix 3)	Building the draft SSE template

As seen from Table 4, the same key stakeholders participated in Data 1 and Data 2 collection stages. Data 2 was collected by conducting one-to-one discussion sessions where an initial proposal for supplier sustainability evaluation was expressed by the author of this Thesis and input from the key stakeholders was asked. The meetings were recorded and documented in the field notes. Suggestions received were utilized in formulating the final proposal for supplier sustainability evaluation.

For validation of the proposal, feedback is collected in Data collection stage 3. The details of the data collected in stage three is presented in Table 5 below.

Table 5. Data 3 collection for validating the proposal.

Data Stage	*Participant*	*Date and Duration*	*Documentation*	*Topics Discussed*
Data 3a	Head of Sustainability, HQ	27.04.2016 duration 60 minutes	Audio recorded, Field notes (appendix4)	Feedback for the proposed SSE template
Data 3b	Supplier Quality Manager, BU1	28.04.2016 duration 80 minutes	Audio recorded, Field notes (appendix4)	Feedback for the proposed SSE template, next steps

As seen from Table 5, the feedback was collected from the Head of Sustainability from headquarters, and from the Supplier Quality Managers from each of the business units. Data 3 collected at this stage, was applied to the initial proposal after which the final proposal was introduced.

2.4 Validity and Reliability Plan

Rigor of a study is measured by the *validity* and *reliability* of the research. The *validity* and *reliability* plan of this Thesis is based on the qualitative research methodology. Additionally, the selected research method influences the approach of assessing rigor. *Validity* of a qualitative study relates to the selection of appropriate tools, processes and data (Leung, 2015). Commonly, four types of validity (Yin, 2003) are used in a qualitative research. These are *internal validity*, *construct validity*, *external validity*, and *reliability*. These four types of validity are discussed in more detail below.

Internal validity assesses the selection of the research method against the outcome of the research. Data collection methods need to be selected based on the premise that the desired objective is attained. Internal validity is seen as a strength in a qualitative study due to the extensive data collection methods utilized. (Quinton and Smallbone, 2006: 127-128) A method to increase the internal validity is the use of triangulation, which additionally is a strength in a case study. By triangulation the issue of validity can be addressed because multiple resources are utilized to interpret the same phenomenon (Yin, 2003: 99).

As part *of internal validity, construct validity* measures the inherent validity of the theory assessed. Construct validity is ambiguous concept which is difficult to validate. However, the results of the research need be compared to the theory to validate the results. (Quinton and Smallbone, 2006: 128) The data collection methods used in case study are expected to enhance the internal validity and construct validity.

External validity assesses the applicability of the research to different case contexts. In a qualitative study, generalizability using a small sample is difficult to prove. Thus, to some extent, external validity does not concern qualitative research. However, the findings could be evaluated based on how applicable they are in a different context and external validity evaluated on that basis. (Quinton and Smallbone, 2006: 129)

To support validity in this Thesis, the plan is to start by clearly defining the business challenge, objective, and outcome in the case context. The structure of this Thesis follows the case study design. In this Thesis, data is planned to be collected from interviews, observations, and from company internal documents. Utilizing triangulation for data collection enhances the validity. Furthermore, to enhance the internal validity and

construct validity, the plan is to carefully document the data collection. In order to ensure the validity of the data collected, the interviews are recorded and transcribed into field notes. In addition, the field notes are delivered to the interviewees to check before utilizing them in the research. External validity is planned to be taken into consideration through the assessment of the results applicability to another case context.

Reliability assesses the replicability of the research when conducted by another researcher. In order for the research to be reliable, results should be consistent over time and they should be reproducible by following the same methodology (Golafshani, 2003: 598). Following the case study protocol is a way to increase the reliability of the study (Yin, 2003: 67). Yin (2003) states that “the goal of reliability is to minimize the errors and biases in the study.” In order to fulfill this goal, the research needs to be documented thoroughly. Implementing a strict evidence trail, the research could be repeated and similar results reached. (Yin, 2003: 37-38)

The plan to ensure reliability of this Thesis is inherent to the selected research method. By following the case study method, reliability is integral. Reliability is ensured by utilizing various sources for data collection. Thus, in addition to internal documents and observations, multiple stakeholders are involved in the data collection. Furthermore, reliability is ensured by documenting the research findings, as mentioned above. To avoid bias in the study, preliminary findings are planned to be presented and feedback received, which is then utilized to improve the proposal of the study. Additionally, reliability is ensured by applying best practice from theory to each area of the research proposal.

3 Current State of Supplier Evaluation

This section describes the current practices for supplier evaluation at the business units and explains the needs and expectations from headquarters. This section is divided into four subsections starting first with headquarter's (HQ) current process and needs, continuing with the current processes in each of the two business units, and finally ending with the key findings from the current state.

3.1 Overview of the Current State Analysis Procedure

The current state analysis (CSA) aimed to establish the current practices of supplier sustainability evaluation and how those practices are currently conducted both at the HQ level and the business unit level. In addition, the CSA aimed to clarify how sustainability is understood in the case company.

First, internal documentation was examined to form a better understanding of the current situation. Second, a key stakeholder from HQ was consulted about expectations regarding sustainability. Third, the current process of sustainability evaluation executed by HQ was examined. Fourth, key stakeholders from each of the two business units were interviewed. These interviews were conducted to establish an understanding of each business unit's current supplier evaluation process and current sustainability practices.

The current state analysis was conducted by interviewing key stakeholders in both of the business units and at HQ of the case company. Data to understand the current processes of the case company was collected from key stakeholders from business unit 1 and business unit 2 as well as from headquarters. This information was collected by discussions and through interviews and from the company's internal documents. Together, these form an overall understanding of the current state. The results of the current state analysis are discussed in more detail below.

3.2 Supplier Sustainability Evaluation and Related Concepts Used in the Company

The starting point of the CSA was to understand existing concepts related to supplier sustainability which are currently used by the case company.

As used in the case company, *supplier sustainability* means the environmental and social performance of the suppliers.

As understood in the case company, *supplier sustainability evaluation* would mean the assessment of the current and potential suppliers against the predetermined criteria that comply with the case company values.

Sustainability is integrated in the business strategy of the case company. Its sustainability strategy is formed in such a manner that it supports the company's strategic objectives. On the strategic level, sustainability of the supply chain consists of (a) supplier risk mapping, (b) supplier audits and assessments, and (c) subcontractor evaluations. In order to achieve the strategic target, the case company has established a Code of Conduct that each supplier is expected to comply with

The case company's Code of Conduct delineates the corporate culture, commonly accepted practices, and commitment to laws and legislations. The issues covered in the Code of Conduct are listed in Table 6 below.

Table 6. Case Company Code of Conduct.

#	*Code of Conduct criteria*
1	Integrity
2	Compliance with laws and regulations
3	Quality and excellence
4	Fair competition and compliance with anti-trust legislation
5	Transparency and openness
6	Human rights
7	Equal opportunities and non-discrimination
8	Intellectual property and company assets
9	Rejection of corruption and bribery
10	Occupational well-being and safety
11	Community involvement and sponsorship
12	Ethical standards of our suppliers

The Code of Conduct principles are presented in Table 6 above. These same themes are expressed in the supplier sustainable development criteria as well, which the case company has developed. The sustainable development criteria are listed in Table 7 below.

Table 7. Sustainable Development Criteria.

#	*Criteria*
1	Integrity
2	Compliance with laws and regulation
3	Fair competition and compliance with anti-trust legislation
4	Rejection of corruption and bribery
5	Transparency and openness
6	Product stewardship
7	Intellectual property and company assets
8	Human Rights
9	Occupational well-being and safety
10	Protection of the environment and abatement of climate change
11	Supply chain management

As seen from Table 7, the sustainable development criteria set the direction for supplier sustainability as well. The sustainable development criteria are described in short below.

Integrity is a fundamental to all aspects of conducting business at the case company. Integrity is demonstrated by respecting agreements and contracts when conducting business with the case company.

Next, all suppliers are expected to be *Compliant with laws and regulation*. This is considered to be the minimum level. The supplier shall provide proof that they are taking the needed actions to comply with this clause.

Fair competition and compliance with anti-trust legislation. The supplier shall at a minimum not disclose or exchange any business sensitive information.

With *Rejection of corruption and bribery* suppliers are expected to refrain from accepting and offering payments that exceed the normal standards of hospitality. Suppliers are

expected not to participate in money laundering under any circumstances and to refrain from suspicious money transactions.

By *Transparency and openness* suppliers are expected to disclose any relevant information concerning the Sustainable Development Criteria to the case company.

By *Product stewardship*, suppliers are expected to allocate the needed resources and expertise to ensure required quality. At a minimum level, suppliers are expected to meet the core requirements of ISO 9001, continuously striving for improving their health, safety and environment (HSE) issues, and to ensure that the products do not contain any hazardous material restricted by European or national legislation, or by the case company.

Next suppliers should protect the case company's *Intellectual property and company assets* and ensure that it is not accessed by outsiders.

Moreover, suppliers should retain from any activities that violate *Human Rights*. Suppliers shall comply with UN Declaration of Human Rights and the Declaration of Fundamental Principles and Rights at Work by the International Labor Organization (ILO), and the Children's Rights and Business Principles developed by UNICEF, the UN Global Compact and Save the Children.

Occupational well-being and safety, suppliers provide a safe working environment. In order to prevent work relates accidents and injuries, the supplier shall meet the core requirements of OHSAS 18001 management system, and comply with the Minimum Safety Requirements of the case company.

With *Protection of the environment and abatement of climate change* the supplier shall work towards minimizing the use of raw materials, the use energy, waste and emissions. To protect the environment the supplier shall comply with the core requirements of ISO 14001 environmental management system and to take the necessary measures to prevent any environmental accident and limit the environmental impact.

By *Supply chain management* the supplier ensures that its suppliers respects and comply with these same criteria. Suppliers are expected not only to comply with the above described criteria but to develop their own functions and to extend this practice to their own suppliers as well. Together, *the code of conduct* and *the sustainable development*

criteria form the basis for new and existing supplier relationships. Although these criteria are similar to each other, they reflect the cornerstones of the case company's values and help to ensure sustainable business practices.

In the case company, a checklist for supplier sustainability has been created. The questions relate to the same themes as present in the code of conduct, e.g., the use of child labor and forced labor, and safety of the work environment. However, this list of 8 "yes or no" questions has never been implemented into the processes at either of the business units.

The Minimum Safety Requirements by the case company make part of the internal operations as well as guide the supplier development criteria. These requirements determine the safety standards that the case company expects its suppliers to comply with. The Minimum Safety requirements are presented in Table 8 below.

Table 8. Minimum Safety Requirements at the case company.

Requirement	*Short description*
Lock out / tag out procedure	Only trained personnel can perform the procedure. Inform personnel that the procedure is underway.
Working at height	Comply with local regulations. Where there exists a chance of falling, fall prevention measures need to be in place. When using equipment to lift people, a safety harness must be used.
Lifting	Lifting devices must be operated only by trained personnel. Inspections of the devices must be planned, carried out, and documented.
Confined spaces	Only trained personnel can operate in confined spaces. The work must be planned and risk assessment performed. Continuous ventilation need to be ensured.
Operating tools and equipment	Risk needs to be assessed e.g. is the tool suitable for the task. Personnel needs to be trained to perform the work and to use the tools.
Working with hazardous substances	Personnel needs to be trained and risks assessed. A chemical register needs to be maintained.
Personal Protective Equipment (PPE)	Safety glasses, work wear, and protective footwear must be worn. When a noise limit is exceeded, ear protection needs to be worn. Helmets need to be used on construction sites.
Maintaining good order	Walkways, aisles, and fire exits, need to be clear from clutter. First aid equipment needs to be accessible.
Road travels	Local traffic laws and customs must be met. Driver needs to be trained, authorized and licensed.

As seen from Table 8, to prevent risk factors the case company has created the Minimum Safety Requirements. Compilation of this safety document ensures that needed procedures are promoted when working in unsafe environments. The Minimum Safety Standards are used by the case company in its own operations and it promotes them to be used at its suppliers as well. These requirements are established to standardize operating practices and to prevent injuries, misconduct, and fatalities.

In addition, the case company has General Purchase Conditions (GPC) agreement in which some of the same themes are determined. Suppliers are expected to sign this contract, and therefore comply with the terms. In GPC the following issues are defined.

By signing the GPC the suppliers agree to comply with applicable standards. For example, product safety, chemical, and radiation standards are applicable in the EU for that specific industry. In addition, mandatory laws and regulations must be met by each supplier. The supplier is responsible for carrying out the necessary registration and reporting for electronic, electrical and other waste, and chemical and hazardous material. Each supplier assures that monitoring and inspection of equipment is carried out properly and they are used properly. In addition, each supplier confirms that the material is free from radioactive contamination and that they know how to act when radiation is detected, because a “polluter pays” principle is applied in all contracts within the supply chain. Furthermore, each supplier ensures that all required documentation and qualifications are available upon request.

Sustainability issues have been taken into account in the GPC as well. It states that the case company should take a responsible attitude towards sustainability, including health, safety and environmental protection. The supplier should comply with regulations and legislation concerning environmental issues and it should monitor and assess risks in its operations in order to prevent significant environmental impact. By signing the GPC the supplier acknowledges the case company’s HSE Policy and ICC Business Charter for Sustainable Development. The supplier confirms that its operations do not conflict with these principles, and that they take responsibility to pass the same principles and standards up along their supply chain and to have their suppliers comply with them.

Summing up, as currently understood in the case company, supplier sustainability evaluation has been limited to the key concepts described above, i.e., HSE, product stewardship, compliance, and supply chain management (SCM) in this case context. However, once the supply sustainability criteria are defined, it is not enough to impose a requirement to improve sustainability from the customer side, the suppliers must be motivated to improve their processes themselves as well.

Supplier sustainability evaluation is planned to be integrated as a part of a bigger process of supplier evaluation. The current processes of supplier evaluation and the expectations from the headquarters for supplier sustainability evaluation are discussed next.

3.3 Current Practices for Supplier Evaluation

Regarding the current supplier evaluation practices, they need to be analyzed in the context of the two business units. The two business units of the case company both have their own processes and procedures. In addition to the activities performed by the two business units, the headquarters of the case company conducts additional activities in the field of supplier sustainability evaluation. All the current processes for conducting supplier evaluations are described in the following subsections.

3.3.1 Current SSE Process by HQ of the Case Company

Presently, Headquarters has its own well-established vision of supplier sustainability evaluation being conducted from the beginning of 2015. HQ wants to extend the good practices of sustainability evaluation that the case company currently practices in its own operations to its suppliers to ensure that needed actions in preventing potential risks are taken. For this reason, HQ has decided to evaluate its suppliers on their *sustainability*. This process is described next in more detail.

Based on the results of the CSA, the current process of SSE that headquarters utilizes in supplier risk evaluation is described in Figure 2 below.

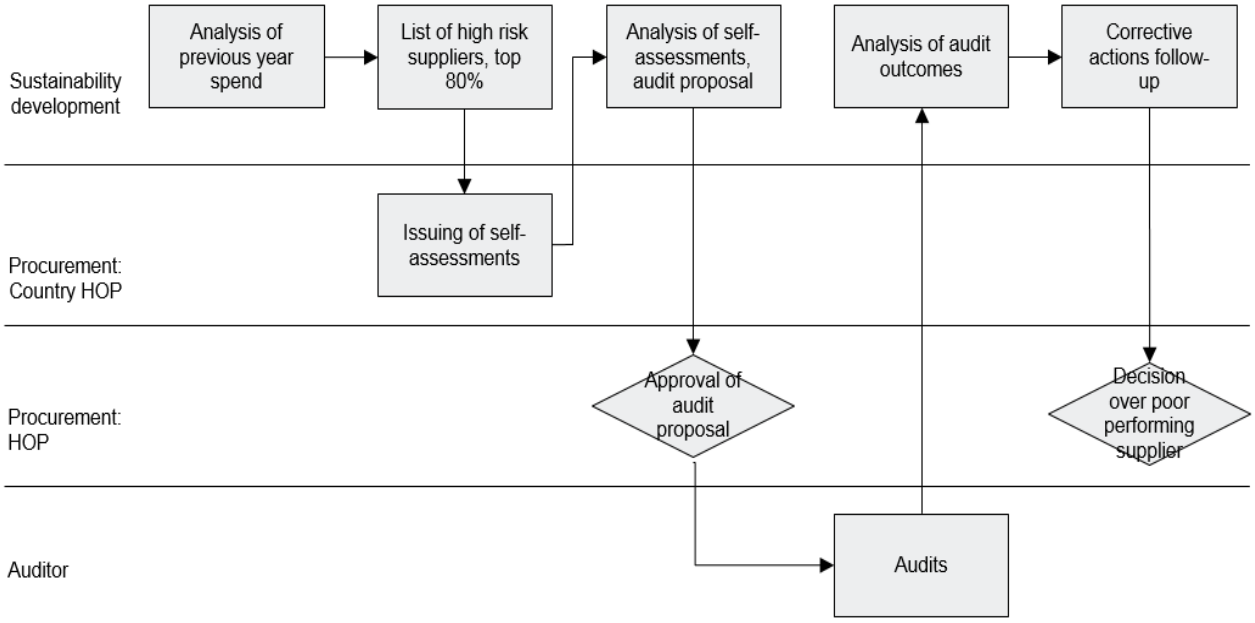


Figure 2. Supplier sustainability risk evaluation process at HQ.

The process described in Figure 2, above, assesses the sustainability risks of the suppliers. In this supplier sustainability evaluation process, first the most critical suppliers are recognized based on the previous years' spend. Second, based on the analysis of the yearly spend, a list of high-risk suppliers is formed. Third, based on the list, a self-assessment form is issued to these suppliers. As seen from the process above, contact with a given supplier is handled through country-specific Heads of Procurement (HOP). Fourth, the results of the self-assessments are analyzed. Based on the findings from the self-assessments, a proposal for an audit is prepared. Fifth, each audit proposal is sent for approval to the HOP. Sixth, based on this proposal, the supplier sustainability evaluation is conducted. Seventh, the audit findings are analyzed and a corrective action request is formed. Eighth, the corrective actions are followed-up on. Ninth, based on the supplier's ability to act upon the findings and implement the required improvements, decisions concerning the future business are determined.

Currently, the questionnaire used for auditing the supplier on their sustainability practices comprises 88 questions. These questions have been divided into five categories. These five categories are: (a) HSE, (b) product stewardship, (c) compliance, (d) human rights, and (e) supply chain management. Table 9, below, depicts the number of questions in each category.

Table 9. Categorization of questions in current sustainability process at HQ.

	Category	*Number of Questions*
a	HSE	23
b	Product Stewardship	11
c	Compliance	22
d	Human Rights	28
e	SCM	4

As seen from Table 9 above, *Human Right* issues are looked at most frequently. In addition, *HSE* issues and *Compliance* are considered almost equally important. However, the number of questions for each category does not necessarily correlate with the severity of the issue. The questions are based on European directives, case company guidelines, and quality management system requirements. Evaluation of the answer is made as against the standard indicated as baseline or against local law, whichever is stricter. In addition, the auditor evaluates whether the supplier might have legal non-conformities and give suggestions as to detected non-conformities. The questionnaire categories are explained next in more detail.

In the *HSE* category, the first questions in the HSE category try to establish the level at which the supplier is operating. The questions concern quality systems and written procedures which are not required from the suppliers to conduct business with the case company. In addition, the *HSE* questions relate to protective equipment and general safety at the supplier. An example question in this category is "*Has the company set environmental KPIs with clear improvement targets?*"

In the *Product Stewardship* category the questions asses the risk level of the supplier. Baseline for many of these questions is management standards, such as ISO9001. An example question in this category is "*Does the company keep a register of raw material suppliers?"*

The *Compliance* related questions try to establish the level of which the supplier has taken anti-bribery actions and how intellectual property (IP) is protected. "*Have the workers been trained in rejection of corruption and bribery?*" is an example of the type of questions in this category.

Human Rights issues is an important category and violations regarding human rights can cause immense damage to the company's reputation. For this reason, the issue is investigated thoroughly. Amongst other areas, the questions try to determine that all the workers are treated fairly and the supplier is not using child or forced labor. An example of a question in this category is "*Are total working hours within allowable limits under the applicable law or agreement?*"

Questions related to *SCM* are to determine the level that the supplier is requiring from its suppliers and compliance with the case company regulations. An example question in this category is "*Does the company have a documented supplier approval process including also CSR and environmental issues?*"

So far, this questionnaire has been used to conduct a supplier sustainability evaluation for eight suppliers during last year. These evaluations were conducted in China, based on supplier risk mapping. During the sustainability evaluations, some deficiencies in, e.g., HSE matters, were discovered. Many of the noted points related to the use of personal protective equipment as well as marking the exits and safety equipment. Based on such risk mapping, the highest risk suppliers are found in China, India, and Brazil. There is a plan to continue with the same format and evaluate more suppliers this year. The sustainability evaluation gives important information regarding the sustainability level at which that supplier operates.

In this supplier sustainability evaluation process at HQ, some weaknesses have been recognized in this supplier sustainability evaluation process. One of the recognized weaknesses of the current process at the case company headquarters is a *lack of monitoring* that the needed actions are carried out at the suppliers. Due to supplier evaluation is currently not performed by the business units, they are not aware of this recognized deviation and are thus not be able to monitor that needed actions are taken.

Another recognized weakness of the current practice at HQ is *the cost* of the process. Currently, costs are allocated from the strategy budget. The intent is that the business units would bear the costs of supplier sustainability evaluation. However, the expertise to conduct the supplier sustainability evaluation to an in-depth manner is not a core competence of the case company. Thus it cannot be reasonably expected that the supplier sustainability evaluation would be carried out in as detailed a manner as it has currently been conducted.

In addition, from the resource and expertise point of view, a supplier sustainability evaluation performed in such a detailed manner is an extremely burdensome process for implementation (if considered as performed in the current functions by the business units themselves). Therefore, HQ hopes that the process of supplier sustainability evaluation could be simplified in a manner so that it can be built into the current processes of the business units. Before any suggestions how sustainability could be built into the current process can be made, the study needs to look into the current SE practice by the selected case business unit.

The case company has more than 7000 suppliers in its global supplier network. The current practices are in place to ensure that the customer requirements are met. Currently, suppliers are evaluated based on their performance, capabilities, and quality. Ensuring these aspects is the basis for the business practices and, in addition, for the SE process in the case company.

The current processes in each of the business units are described in the following subsections.

3.3.2 Current SE Process at Business Unit 1

Business unit 1 (BU1) does not currently have a separate SSE process but performs a supplier evaluation process which contains some elements of SSE in it.

As for the business area where BU1 operates, it offers valves and pumps for its customers in oil and gas, pulp and paper, and other processing industries. 25% of the case company's net sales comes from BU1. Business unit 1 has five factories located in different countries. All these factories share several of the same suppliers. The factories have a common, established process for evaluating current suppliers. The supplier evaluation process for existing suppliers consists of two processes, i.e., supplier resource management (SRM) and periodic audits. These processes are shown in Figure 3 below.

Figure 3. Supplier Evaluation Process at BU1.

Prior to the process shown in Figure 3, suppliers are evaluated as *potential* suppliers. The information gathered from this is utilized in the evaluation process for existing suppliers. The process for existing suppliers consists of supplier resource management (SRM) and periodic audits, which are performed simultaneously. The frequency of supplier evaluation is from one month to one year. Global supplier partners are usually participating in the monthly SRM meetings where capacity, quality, and delivery issues are discussed. The need to conduct an audit might revealed from these meetings, e.g., when continuous quality claims are discussed. The output of these SRM meetings a capacity study and they functions as a regular communication channel that enables information sharing and improve the level of communication between the case company and the supplier. In addition to the monthly SRM meetings, BU1 conducts audits at the supplier's premises. This periodic evaluation process is presented in Figure 4 below.

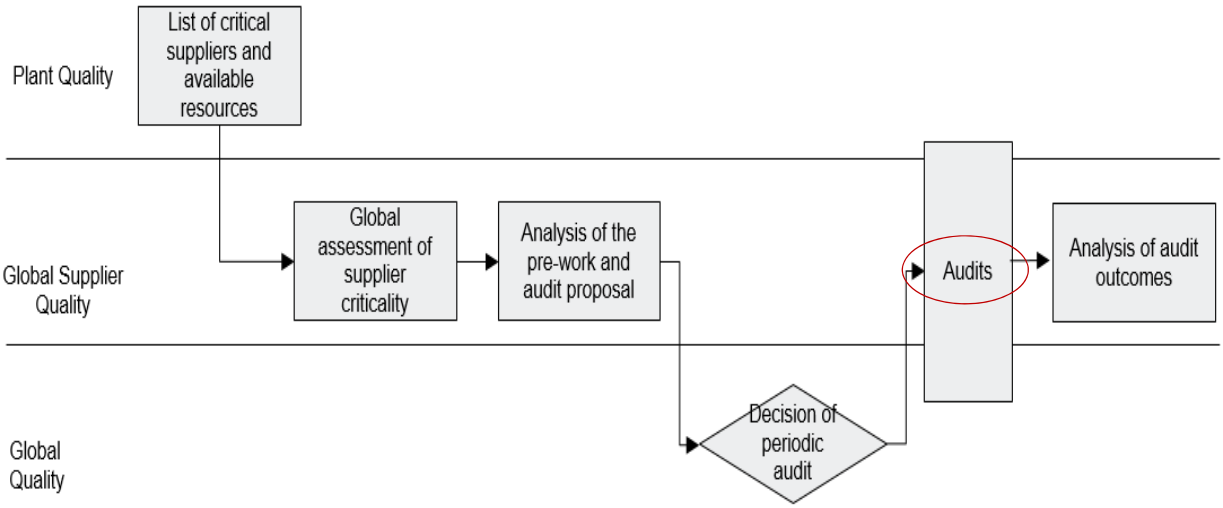


Figure 4. Process for periodic evaluation at BU1.

As seen from Figure 4 above, the periodic supplier evaluation process includes four steps. First, each plant determines the most critical suppliers and determines the resources available for conducting supplier evaluations. Second, the global supplier quality manager compiles this information and conducts an assessment of the supplier criticality. Third, the global quality manager analyzes the pre-work material and prepares a proposal for the audits. Fourth, the global quality team makes the decisions regarding the audits. Fifth, the audit is performed by the available resources as determined in the first stage. Sixth, the audit outcomes are analyzed by the global supplier quality manager to determine whether further action is required. The supplier sustainability evaluation process in planned to be built into the fifth stage, i.e., the audit, of the existing process, as indicated in *red* in Figure 4.

The periodic audit process is not applied to all suppliers in the BU1 supplier network. Instead, as mentioned above, the most critical suppliers are assessed yearly. However, the largest suppliers are audited at least every two years. The process currently in place does not actively take into account the aspects of supplier's sustainability. The evaluation of the sustainability aspects is merely subjective observations of the person conducting the audit. This, however, is not seen as a major risk factor at BU1 because each supplier is screened thoroughly before initial acceptance to become a supplier to the case company. Before initial acceptance, supplier sustainability is evaluated based on the Code of Conduct and values mentioned in the Sustainability Manual (details in section 3.2).

As for the practices related to *supplier sustainability evaluation*, the following steps currently performed in BU1 can be considered as belonging to this area. The first step includes signing the case company GPC and Code of Conduct. By doing so, supplier declare its compliance with the case company criteria. Secondly, suppliers are evaluated based on these criteria during on-site visits. However, this evaluation is subjective because it is not a requirement in the current process. For this reason, a supplier sustainability process is needed.

3.3.3 Current SE Process at Business Unit 2

The case company's business unit 2 (BU2) operates in the mining industry and offers equipment, services and process knowledge to its wide range of customers in the field of minerals processing. The business unit is divided into two business areas, i.e., Capital

and Services. The capital business area is responsible for providing process solutions and system deliveries whereas the service business area offers customers a full range of services solutions. 75% of the case company's net sales come from BU2. As a global operator, business unit 2 has a large supplier network as well, encompassing hundreds of suppliers.

Business unit 2 does not currently have a global supplier evaluation process. However, the business unit's factories around the world conduct their own supplier evaluations. The supplier evaluation practices are thus diverse. Currently, business unit 2 is unifying their supplier evaluation practices. The initial unified process is planned to include new supplier evaluation, with a supplier self-evaluation to begin. The process can be later modified to cater for the needs of all the key stakeholders. The plan is to utilize such new process to evaluate approximately 50 to 70 global suppliers annually.

BU2 has several different SE practices. The process map shown below presents the current supplier evaluation process at one of the location of BU2. The supplier evaluation process is conducted similarly for potential and existing suppliers. Approved suppliers are scored and the frequency of supplier audits is then determined by this scoring. Existing suppliers who receive a rating below three are audited once a year and suppliers who receive rating above three are audited once every two years. The process for supplier evaluation is presented in Figure 5 below.

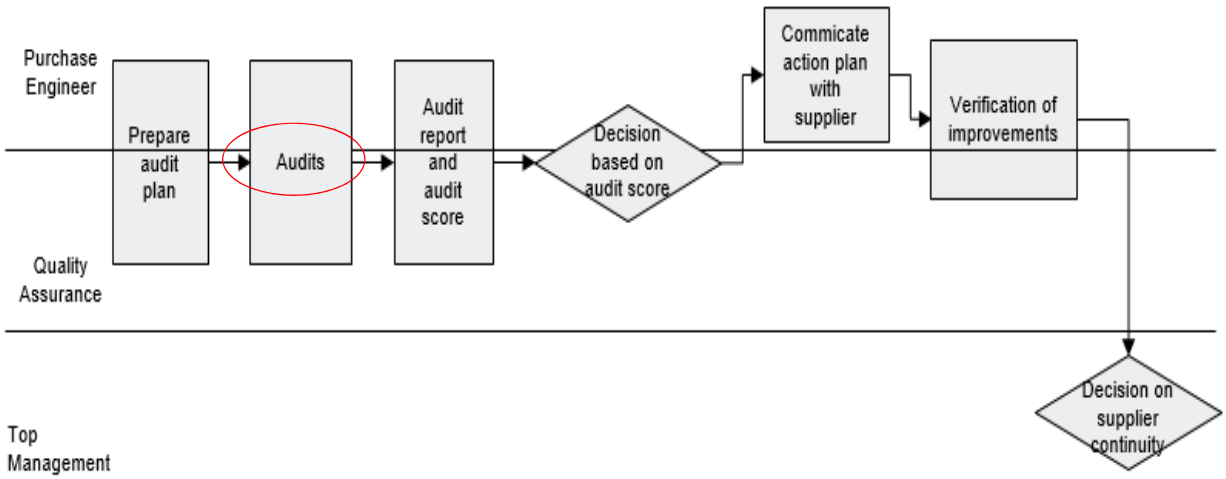


Figure 5. Current local SE process at BU2.

As seen from Figure 5 above, the Purchase Engineer together with Quality Assurance are responsible for the process of supplier evaluation. First, an audit plan is prepared. The plan is based on a supplier rating from a previous supplier evaluation. A rating lower than three subjects the supplier to a full audit. Supplier that received a rating of three or higher than three undergoes a more concise audit. The supplier audit topics are shown in Table 10 below. The topics focused on by the concise supplier audits are indicated in *yellow*. Second, an audit report and audit score is formed based on the supplier assessment checklist. The supplier sustainability evaluation process is planned to be built into the second stage, i.e., the audit, of the existing process, as indicated in *red* in Figure 5. The report which is the outcome from the second stage, indicates the non-conformities noted during the audit. The supplier scoring in the audit is based on an average rating received from each answer belonging to the same topic category. The score of each question is between zero and ten. Third, based on this evaluation, an action plan is determined. Fourth, the action plan is communicated to the supplier. This is the responsibility of the Purchasing Engineer. Fifth, the improvement actions performed by the supplier is verified by the Purchasing Engineer (PE) and by Quality Assurance (QA). If the required actions have not been undertaken, a decision on whether to continue with this supplier is made. The final decision is made by top management.

Table 10. Supplier assessment topics in local SE process at BU2.

Section	*Topic*	*Number of questions*
1	Management Responsibility	10
2	Quality Management	8
3	Environmental Management	5
4	Risk Management	8
5	Contract Review	6
6	Production Process Management	16
7	Training	2
8	Prototype Support	1
9	Spare Parts Supply	2
10	Design Control	8
11	Purchasing	5
12	Cost Control	4
13	Warranty	3
14	Product Liability	2
15	Logistics	2
16	Facilities and Utilities	4

Table 10 shows the supplier assessment topics used in a local supplier evaluation process at BU2. As seen from Table 10, above, the supplier assessment questionnaire used in the audit process includes 16 sections. The assessment including all 16 sections is performed with regard to potential suppliers as well as for the existing suppliers with a supplier rating less than three. Out of these 16 sections, sections 3, 4, 6 and 16 are asked from suppliers who have been rated highly in the supplier rating.

This existing SSE questionnaire comprises 92 questions. Each category is presented in more detail below. In addition to the below presented questions, the questionnaire contains basic background information about the supplier, e.g., its current management system certification and information regarding the number of personnel the supplier employs.

Management Responsibility assesses the supplier's awareness and commitment to continuous improvement with regard to quality and productivity for their products and services. The questions in this category try to acquire proof that the supplier has a quality policy, an environmental policy, and KPI's to monitor the supplier's own performance.

Quality Management measures the existence, implementation, and effectiveness of the supplier's quality management system. The supplier preferably provides a quality manual that in current use and the related documents are in order.

Environmental Management evaluates the existence, implementation and effectiveness of the supplier's environmental management system. This category aims to establish how well the supplier has taken environmental aspects into consideration and whether it has an environmental policy in place.

Risk Management evaluates the existence, implementation and effectiveness of the supplier's risk management system. The questions assess how well risk management has been taken into account at the business level and at the personnel level as well. Issues related to personnel safety, equipment, and emergency plans are covered in this category.

Contract Review evaluates the effectiveness of the systems and practices used at the supplier. This section aims to ensure that customer requirements are fulfilled

and that the supplier's process supports customer's process in, e.g., engineering change situation. Intellectual property rights are covered in this category.

Production Process Management evaluates the supplier's production management capabilities and production efficiency. In addition, this section evaluates the effectiveness of process quality measures.

Training assesses the competence of the supplier's personnel. Preferably the supplier has personnel training records that ensure the competence of the personnel.

Prototype Support assesses the supplier's capability to provide prototype services if necessary.

Spare Parts Supply assesses the supplier's capability to deliver necessary spare parts in long-term. This assesses the supplier's capability for small batch production with short lead-time and without cost penalties.

Design Control assesses the supplier's design capabilities. This assesses the supplier's capabilities to design products according to the case company requirements.

Purchasing assesses the supplier's purchasing process and the capabilities to manage the material supply. The target is to establish a comprehensive understanding of the supplier's purchasing process and ensure that the needed requirements are met.

Cost Control assess the supplier's capabilities for cost reduction and continuous improvement in this area. The aim is to assess the cost competitiveness over the long term.

Warranty relates to the warranty issues typical to the case company. This section aims to assess the supplier's capability to manage warranty issues.

Product Liability assesses the supplier's ability to act upon potential product liability issues. Furthermore, it ensures that a minimum amount of product liability insurance has been set by the case company.

Logistics assesses the supplier's capabilities to manage outbound logistics according to the case company requirements.

Facilities and Utilities assesses the supplier's facilities against the case company requirements. The facilities need to be suitable for manufacturing and handling the products at the expected quality level.

Each question in this existing SSE questionnaire is scored from one to ten, ten being the highest. An average score out of each category is then calculated. The average of each category then forms the overall rating for the supplier. This means that the highest rating for the supplier is ten as well. Suppliers who score less than three are discarded as not being acceptable. A score above three is considered interim acceptable and a score above five is acceptable.

Overall the supplier evaluation process used in this example location at BU2 is extensive. It currently contains elements of a supplier sustainability evaluation. As mentioned, for suppliers who have previously performed well in the evaluation, only the relevant, i.e., sustainability-related categories are evaluated.

As compared to this extensive practice for SSE evaluation, in another location the evaluation concentrates only on new suppliers. When evaluating a potential supplier, potential suppliers are asked to fill in a self-assessment form. This form contains basic information about the supplier, e.g., the size of the company, number of personnel, what products are being offered and the kind of equipment it has. In addition to these questions, each potential supplier fills in an evaluation of its compliance. This self-assessment questionnaire contains some sustainability-related questions as well. After the supplier has answered the questionnaire, the questionnaire is evaluated by the business unit's financial and legal department. This check is performed in order to map any potential risk factors and to evaluate the compliance of the supplier to the case company's standards. For suppliers who are eligible based on the self-assessment, an audit is be performed. This audit concentrates on quality, but the questionnaire consists of questions that map the suppliers' procedures from machinery to human rights. The sustainability questions in this quality audit relate more to the potential quality risk the supplier might inflict. A supplier that scores more than 85 points in the audit is accepted for supply to this location of the case company's BU2.

Summing up, the examples shown above describe different practices for conducting supplier evaluations at BU2. The first example describes an extensive process that is used for both potential and existing suppliers, where sustainability has been included in the process. The second example describes a location where there is only a limited process for evaluating suppliers or the process is completely lacking.

3.4 Key Findings from the Current State Analysis (Data Collection 1)

As shown in the analysis above, presently SSE is done by HQ, conducted by a third party. In BU1, SSE is not conducted. However, some elements are included in the current SE process. In BU2, only local processes regarding SE are conducted. Some of these may contain elements of SSE. More detailed findings are summarized below.

Currently, headquarters is conducting a wider supplier sustainability evaluations to selected high risk suppliers. The business units do not have SSE as such but conduct their own supplier evaluations that concentrate more on supplier's *performance*, *quality*, and *capability*. The ongoing cost savings actions are putting pressure on the case company's business units to enter into potentially more risky area of suppliers in search of higher savings. Thus, there is a growing need to evaluate the suppliers on sustainably criteria as well.

First, the currently conducted supplier sustainability evaluation by headquarters is vast and in-depth. This is performed by a third party specialized in sustainability evaluations, and the evaluation process itself requires little participation from the case company. The evaluation consists of several in-depth questions related to compliance with country specific laws and regulations, as well as questions related to other important themes presented in the case company documents. In this format, the supplier sustainability evaluation cannot be implemented into the business units. It is therefore obvious that a lighter version of the same themes needs to be formulated and the less burdensome version would then be incorporated into the current process. Questions remain whether a simplified supplier sustainability evaluation would produce the needed information. In addition, what is left unresolved is how to ensure that the corrective actions recognized in these evaluations are implemented.

In BU1, the process for evaluating suppliers is established and they are operating accordingly. However, the current process lacks a systematic way of evaluating supplier sustainability. The suppliers are expected to comply with the company Code of Conduct, but because the themes are not part of the current evaluation process, the verification of the actions taken is not thoroughly checked.

In BU2, the process for evaluating current suppliers is different in each location. The business unit lacks a global process for evaluating both potential and existing suppliers. The business unit has initiatives for supplier evaluation, but they are only local. This can be witnessed from the described example processes. The other example evaluation process described was extensive and covered sustainability whereas the other process was only for selecting new suppliers.

Currently, SSE is not performed in a systematic way in either of the business units. The case company has targets to develop the current sustainability practices to be part of the evaluation process for new and existing suppliers. Furthermore, this helps to assure that the stakeholder requirements concerning environmental and social aspects are met. The current supplier evaluation practices are illustrated in Figure 6 below.

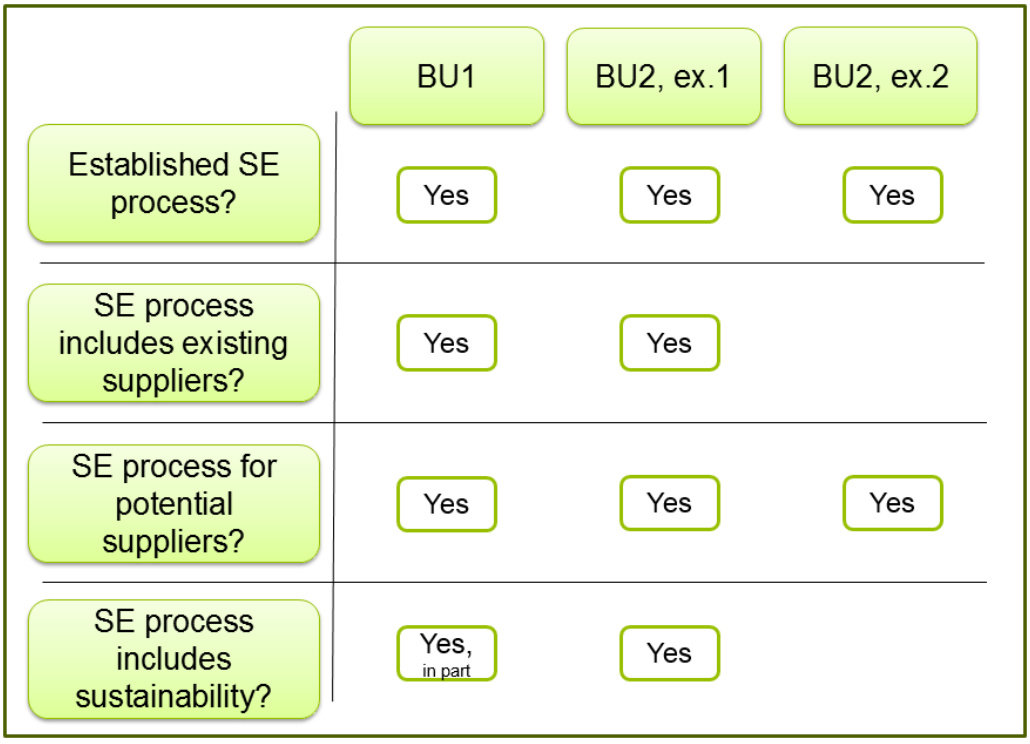


Figure 6. Comparison of the current SE processes at the business units.

As seen from Figure 6 above, both business units have an established process for evaluating suppliers. Business unit 1 has a global process, whereas business 2 has local processes. Two different examples of the business unit 2 supplier evaluation processes were described. Business unit 1 has an established process for both potential and existing supplier selection and evaluation. The process for evaluating existing suppliers includes sustainability aspects only to a certain extent and the process lacks a systematic way of evaluating supplier sustainability. Business unit 2 example 1 has a local established process for both potential and existing supplier selection and evaluation. The same evaluation template is used in both processes. The evaluation contains four different categories for evaluating supplier sustainability. Business unit 2 example 2 has only an established process for evaluating potential suppliers.

Summing up, presently, the group business strategy has placed an emphasis on sustainability of its operations, and it is communicated throughout the company. Headquarters at the case company is interested in minimizing potential risk factors towards, e.g., the brand. In addition, they are responsible for analyzing the annual results and compiling the annual reports. For these reasons, among others, they are interested in a risk evaluation of current suppliers used by the company. However, it is recognized that more efforts towards strategic implementation are needed. In other words, it is not typical for suppliers to identify and correct risk factors before they are pointed out by the customer, i.e., the case company. Thus, a suitable SSE process is needed in each of the business units to verify the compliance of the supplier to the case company values and requirements.

Next section discusses best practice for SSE from literature and identify the relevant ideas as the conceptual framework of this Thesis.

4 Best Practice for Supplier Sustainability Evaluation

This section discusses the best practice for supplier sustainability evaluation found from existing knowledge. The existing knowledge forms the conceptual framework of this Thesis. This section is divided into three subsections. The first subsection defines the concept of sustainability in the supply chain and describes different elements of sustainability. The second subsection discusses the elements of supplier sustainability evaluation in the supply chain. The third subsection presents the conceptual framework of this Thesis.

4.1 Definition of Sustainability Concept in Supply Chain

Sustainability in general is a widely-debated concept. The term itself can imply that it is used as a synonym for sustainable development (SD). Sustainability is often analyzed with a two-dimensional approach concerning the environmental and the social aspects. In addition to this, some practitioners recognize a third aspect: organizational behavioral. (Aras and Crowther, 2010: 54) However, environmental and social aspects are the main focus in this study.

A growing number of organizations are expected to take their environmental influence into consideration. Various stakeholders are putting growing pressure on the organizations to incorporate corporate responsibility and sustainability into their operations (Reuter et al. 2010: 45). Sustainability is seen as a competitive and strategic challenge and thus, organizations have implemented techniques to help to overcome the challenge, e.g., life-cycle analysis, environmental assessment methods, and environmental reporting (Elkington 1994: 94). Additionally, sustainability is used for brand building where it can create a basis for long-term profitability (FIBS. 2015). In order to gain competitive advantage from sustainability practices, they need to be developed constantly.

The sustainability efforts of organizations are monitored and evaluated by several entities. Independent rating agencies such as the FTSE4Good Index, Dow Jones Sustainability Index (DSSI), and Oekem evaluate organizations on corporate governance risk regarding various sustainability issues. (White, 2012: 7) According to White (2015), sustainability ratings can distinguish companies as benchmarks of their industries on good

environmental management practices. Companies that are invested in sustainability practices are prone to improve business performance (White, 2015). Sustainability is constructed of different dimensions which are discussed in the next subsection.

4.1.1 Dimensions of Sustainability: Economic and Stakeholder

Sustainability is influenced not only by laws and legislations but by other factors as well. The underlying feature of sustainability is economic sustainability. For example, an organization's sustainability is influenced by stakeholder influence and political and governmental factors, among others. Often, sustainability is an expression for the financial stability of the company. However, while this is an important factor for the continuity of the business, sustainability incorporates organizational and operational sustainability as well. Among other factors, operating environment, local politics, the organization's ability to attract skilled personnel and other organizational behavior affect sustainability. (Slabyj et al.: 4-6) Thus, in addition to economic sustainability, other factors need to be considered.

Alongside economic disclosure, the disclosure of organizations for environmental and social aspects have increased. The need to disclose the sustainability initiatives for stakeholders has shaped efforts on this front. As many organizations publish sustainability reports, the trend among organizations is to adopt more open reporting practices. Often the information disclosed is qualitative rather than quantitative in nature. However, accusations of dishonesty and non-objectivity have been made against reporting practices because a generally accepted form of reporting is lacking. The Global Reporting Initiative (GRI) is trying to bring these versatile practices together and form a globally accepted coherent standard. (Jenkins and Yakovleva, 2006: 271-274) Currently, GRI is the most recognized standard for sustainability reporting (Burritt and Schaltegger, 2014: 338). To support this notion, all the selected case companies examined in section 4.2.4 comply with GRI G4 guidelines. The next subsection examines environmental and social dimensions of sustainability.

4.1.2 Dimensions of Sustainability: Environmental and Social

Sustainability constitutes a number of different dimensions. Two essential dimensions of sustainability are environmental and social dimensions. A prominent aspect of social sustainability is human rights. In addition to this, social sustainability often underlines legislative issues (Hutchins and Sutherland, 2008:1688). Non-governmental organizations (NGOs) play an important role in raising awareness and developing sustainability practices among business organizations. They make contributions to social and environmental sustainability globally. NGOs raise public awareness, conduct research and educate on sustainability issues. The most influential NGOs include World Wildlife Fund (WWF), Greenpeace, Oxfam, and CERES (Sustainability degrees, 2014). One NGO that has greatly influenced organizational development is the International Organization for Standardization (ISO). The ISO standards are in effect in various fields including production, climate change, and health and safety. The standards certify that products and services are dependable and safe. ISO is developing a standard for occupational health and safety (ISO 45001) to provide a framework for organizations in order to reduce injuries and work-related accidents by improving work environment and working conditions.

As an example, Finnwatch is a Finnish NGO that enhances ecologically, socially and economically responsible business by influencing organizations, economic regulation, and public discourse. Finnwatch monitors the wide range of company specific guidelines and their implementation overseas. Finnwatch reports their findings to the public and engages in communication with the organizations.

Another example, Swedwatch, a Swedish NGO similar to Finnwatch that monitors Swedish organizations, has prepared a study in collaboration with Finnwatch, of Stora Enso's human rights practices in India. The study compares Stora Enso's previously conducted risk assessment to current practices. Stora Enso's operations in Brazil and China led to their exclusion from the Dow Jones Sustainability Index. The unwanted publicity led to the company's investment in sustainability practices. Based on the NGO's findings, the company has taken several steps to improve human rights at the factory. The India factory has its own Human Rights Manual that follows Stora Enso's Corporate Responsibility Policy. However, according to the report, the factory still needs to incorporate improvements. Working conditions do not meet the standards and dangerous working tem-

peratures have been measured. However, after the NGO report was issued, the company started implementing several changes to its practices. (Swedwatch 2013: 3) Thus, NGO's play an important part in an organization's sustainable development.

United Nations (UN) has been a driving force in developing the organization's sustainability disclosure on a national and regional level, along with ILO and ICC (Labuschange et al. 2003: 374). These national charters form the basis for company specific Codes of Conducts and are shaped by them in many respects.

Summing up, sustainability is presently shaped by several dimensions. The *economic* dimension is the underlying element that organizations are mainly interested in. Organizations set for sustainable economic growth often have strong economic management. Organizations are influenced by numerous *stakeholders*. These groups shape the organizational behavior and thus the sustainability disclosure. *Environmental* and *social* dimensions are growing in interest of media and other stakeholder groups steering organizations towards more sustainable business conduct.

Different elements of supplier sustainability evaluation used in supply chains are discussed in the next subsection.

4.2 Elements of Supplier Sustainability Evaluation in Supply Chain

Sustainability needs to be specified in the context of the company and business environment. Specifying sustainability in the company context can reveal focus areas that need to be prioritized. Areas which are individually improved thereby improve the sustainability of the whole organization. (Burritt and Schaltegger, 2014: 331) When taking the sustainable development approach, improving areas individually support other areas in continuous improvement as well.

Organizations can choose to involve themselves in improving their supplier's sustainability performance. This collaboration with the suppliers would possibly require allocated resources and a hands-on approach on developing sustainable solutions. Another option is to take the arm-length approach of supplier management and promote actions that suppliers can utilize in order to improve their actions on the sustainability front. These actions include monitoring the supplier's actions, conducting inspections, and minimizing

potential risks. This monitoring can be based on publicly available material, e.g., annual reports or supplier questionnaires and audits conducted either by the buying organization or by a contracted third party auditor. (Vachon and Klassen, 2006: 797-798) Monitoring and evaluating supplier sustainability is discussed more in subsection 4.2.3.

The definition of sustainability varies across different organizations. However, most often sustainability is linked to the strategy. This linkage is examined in more detail in the next subsection.

4.2.1 Linkage between Sustainability and Strategy

Management has great power to influence the organization's commitment to *corporate social responsibility* (CSR) and thus sustainability. The manner that the corporate strategy has been formulated and the allocation of resources to various company operations determine the extent of commitment to sustainability. (Aguilera et al. 2005: 17) Each operation's targets need to be aligned with the organization's strategy.

Organizations are outsourcing the functions that are not within their core competence. At the same time, in the global economy, organizations are growing their supply network. Despite outsourcing, the organizations are not able to transfer the risk related to environmental or social violations to their supplier's sites. Thus, the related risk on the supply network needs to be assessed on its sustainability. (Foerstl et al. 2010: 118-119) The corporate strategy defines how well sustainability of the supply network is taken into consideration.

As supply chains are becoming more complex, it creates a more pressing need to evaluate the sourcing strategy based not only by the three dimensions, i.e., on-time delivery (OTD), price and quantity, but as well on sustainability (Lefevre et al. 2016: 6). This fourth dimension of sustainability could be implemented as a part of the sourcing strategy as illustrated in Figure 7 below.

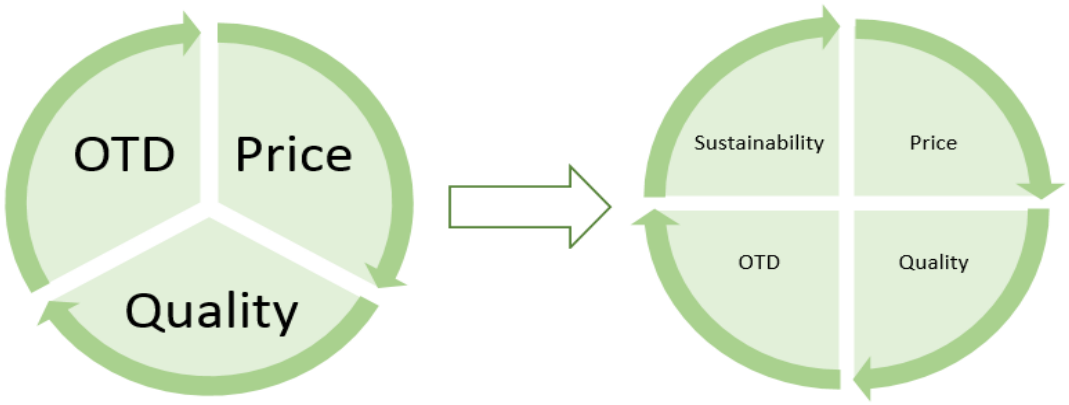


Figure 7. Supply Chain focus.

The focus in the supply chain for many organizations is in price, product quality, and OTD. Sustainability is not seen as a part of the supply chain and thus the efforts are often not fully integrated. When sustainability is integrated into the sourcing strategy, the commitment of the organization can be seen. This integrated sourcing strategy is illustrated in Figure 7. An approach that can be effective in increasing the level of supplier sustainability is to manage the organization's environmental policy by connecting it closely to the purchasing activities (Govindan et al. 2015: 67). However, sustainability is not seen as a driving force in business.

Beske and Seuring suggest tradeoffs must be made in order to implement sustainability into strategy (Beske and Seuring, 2014: 324). In addition, Singh et al. imply that sustainability is achieved at the cost of efficiency (Singh et al. 2009: 195). However, Handfield et al. found that implementing sustainability criteria into supplier assessment did not have a negative effect on the other valued aspects, i.e., cost reduction, quality, or lead time (Handfield et al. 2002: 72). Instead, improving supplier's sustainability can have long-term benefits in these valued aspects.

Vachon and Klassen (2006) argue that despite the importance of sustainable aspects, the primary production drivers still remain the priority in supplier building as well as managing supply chains. Sustainability remains a marginal influencer. Still, integration with the supplier function within the supply chain could still occur, which diminishes the need for monitoring it. (Vachon and Klassen, 2006: 881) Regardless of it being a secondary

driver, improvements in supplier sustainability diminish the potential risks imposed on the purchasing organization.

Supplier selection is an extremely important aspect of creating a well-functioning supplier network. The goal of supplier selection is to select the best partners in order to reduce purchase risk, maximize overall value to the customer, and to create the prerequisites to long-term relationship building. (Chen et al. 2006: 290) However, a profound decision of supplier selection can be made only when economic, social, and environmental, i.e., triple bottom line, aspects are taken into consideration (Labuschagne et al. 2005: 373). This aspect of Corporate Social Responsibility and the triple bottom line is examined more closely in the next subsection.

4.2.2 Corporate Social Responsibility and Compliance, the Triple Bottom Line Approach

Several existing definitions of Corporate Social Responsibility (CSR) all seem to define the term similarly. Five categories can be recognized from the definitions. These five categories are: social, economic, environmental, stakeholder, and voluntariness, i.e., not required by law. (Dahlsrud, 2006: 1). Presently, sustainability is often viewed from the viewpoint of the triple bottom line (TBL), a term initially coined by Elkington (1998). Correspondingly, triple bottom line has been referred to as “people, planet, and profit”. However, the terms environment, social, and economic are more often used. Triple bottom line examines sustainability from the prior-mentioned three different aspects, i.e., environmental, social, and economic standpoints. (Gimenez and Tachizawa, 2012: 531). As seen, triple bottom line is inevitably part of corporate social responsibility (Aras and Crowther, 2010: 51).

Sustainability and sustainable development, terms which are used interchangeably, emerge from the intersection of these three aspects. (Bansal, 2005: 199) This intersection is illustrated in Figure 8 below.

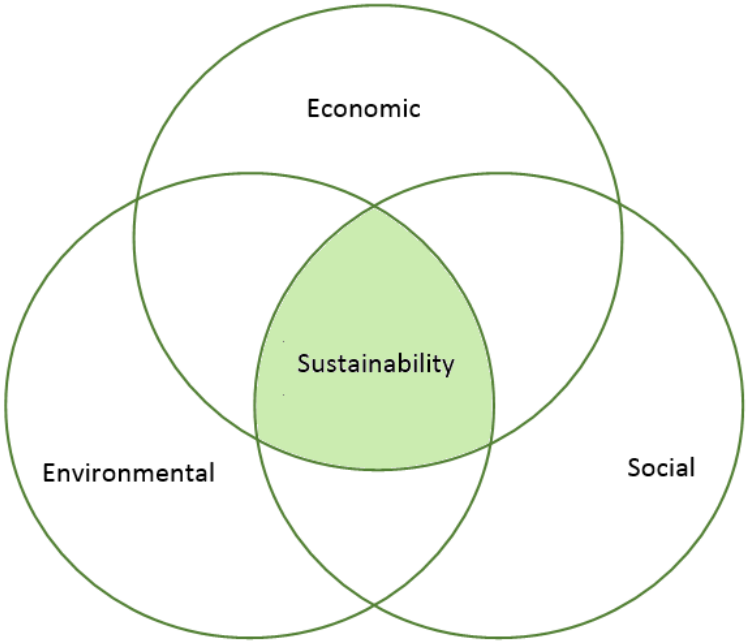


Figure 8. Intersection of Triple Bottom Line.

As seen from Figure 8, a combination of environmental, social and economic dimensions create the foundation for sustainability and sustainable development. Each dimension is necessary for sustainable development, thus if environmental and social dimensions are not supported, economic development is not sustainable. Organizations attempt to reduce environmental impact through the *environmental* dimension, e.g., through minimizing carbon emissions and through pollution prevention and through waste reduction, among other initiatives. Through *Product Stewardship* the environmental dimension is extended to manufacturing products in a sustainable manner. The *Social* dimension addresses important stakeholder issues, and through social management organizations ensure sound business practices. The social practices include anti-corruption practices, engaging business relationships with ethical partners, and desertion of the use of child labor. Through the aforementioned sustainable dimensions, organizations are able to create and capture value which enhances the *economic* dimension. (Bansal, 2005: 197-200) Burritt and Schaltegger (2014) suggest, however, that because of a lack of tools for measuring and evaluating sustainability performance the linkage between these dimensions is difficult to detect (Burritt and Schaltegger, 2014: 338). By increasing efforts and developing tools for measuring and evaluating sustainability, linkages between the three dimensions can be enhanced.

According to Gimenez and Tachizawa (2012) 80 % of the world's 250 largest organizations were reporting on their environmental and social efforts. In addition, organizations are extending the customary corporate governance processes, including their sustainability efforts, beyond their own operations to their supply-chain network. Despite their efforts to extend the environmental and social aspects along the supply network, in practice deficiencies still remain. Organizations enforce the sustainability of their supply network by introducing evaluation tools, Codes of Conducts, and collaboration initiatives with the suppliers. (Gimenez and Tachizawa, 2012: 531-532) However, questions on the effectiveness of these efforts persist.

The practice of measuring and evaluating supply chain on its sustainability is examined in the next subsection.

4.2.3 Measuring and Evaluating Sustainability in Supply Chain

Craighead (2007) suggest that supply chains (SC) are characteristically risky. Interruptions in the SC can cause extensive negative impact and influence the customer significantly. (Craighead, 2007: 131-132) Supplier evaluation practices are often based on historical data that might not reflect the current practices (Handfield et al. 2002: 75). Thus, there is a need to assess suppliers to delineate the risk.

The purchasing function as well as efficient supply chain management (SCM) play an important part in influencing the sustainability-related risk in the organization's supply network. The complexity of global supply chains creates more complexity to the evaluation and auditing process (Neghaiwi, N. 2014). However, the methods of assessing suppliers on their sustainability and the related risks may not be applicable. According to Foerstl et al. (2010) sustainable supply chain management needs to be more than merely a supplier's proclamation of compliance to standards. (Foerstl et al. 2010: 118-119) Organizations use various ways of approaching the matter of evaluating and measuring a supplier's sustainability.

However, finding the best way to evaluate suppliers may be difficult (Chen et al. 2006: 290). Auditing suppliers can be expensive and resource intensive. For this reason, organizations conduct a risk assessment in order to concentrate the more extensive evaluation practices on the high-risk suppliers. These risks can be recognized from the supplier's self-assessments. (Foerstl et al. 2010: 119-122) By developing the tools for measurement, organizations are able to allocate their resources more effectively.

An organization's activities in sustainability evaluation and measurement can be external, i.e., outsourcing of the function, or internal, i.e., incorporated into the existing processes (Vachon and Klassen, 2006: 798). Foester et al. suggest that auditing suppliers on their sustainability is a way to detect improvement potential. Furthermore, in their analysis of several industries on their sustainability practices, they found a process combining sustainability audits with quality and process audits to be beneficial to some of the case companies. (Foerstl et al. 2010: 125) However, implementing sustainability into the supplier evaluation process can increase the complexity of it (Dai and Blackhurst, 2011: 5474). Applying various methods of measuring sustainability is dependent on the case context.

The process for evaluating suppliers may seem demanding to the suppliers. Benefits can be proven to the supplier, however, when approached in a collaborative manner. The benefits that the supplier can achieve may include cost savings from eliminating unnecessary parts of a processes, discovering new innovations and operating practices, or by attracting more business through compliance to national standards. (Lamming and Hampson, 1996: 49) According to Vachon and Klassen (2006), company involvement in developing sustainable innovations can be referred to as environmental collaboration. Environmental collaboration includes investing resources in supplier development, sharing information and involving the suppliers in the product design process in order to reduce needed environmental resources and reduce waste. (Vachon and Klassen, 2006: 799) Environmental collaboration increases supplier's commitment to sustainable development.

Organizations often introduce company specific requirements and guidelines when developing their evaluation models. This creates more complexity in the evaluation criteria, and thus a more flexible supplier evaluation model is needed. (Govindan et al. 2015: 66) Monitoring a supplier's sustainability efforts often concentrates on the certification, e.g.,

ISO14001, and documents that the supplier possesses. Monitoring a supplier's environmental practices include the aforementioned company-specific requirements and guidelines as well. Moreover, a requirement for these documents can be integrated in the supplier selection process. (Vachon and Klassen, 2006: 799) These company-specific requirements connect supplier measurement to the company strategy.

Case Examples

According to UN global compact report (2013), organizations are investing more resources to sustainability efforts than before. However, they fail to implement measures to ensure the sustainability of the supply chain. This is evident from a study conducted by Finnwatch of the corporate responsibility policies of Wärtsilä in 2015. This study examines the company's activities in its supply chain in high-risk countries. Finnwatch bases the report on Wärtsilä's disclosure of their current practices in their annual reporting. The company has divided its corporate responsibility into three different areas, i.e., economic, social, and environmental. The NGO's report focuses on the social aspect with the emphasis on labor rights. Similar to numerous global companies, Wärtsilä has its own requirements for the suppliers in the form of a Code of Conduct and Supplier Handbook.

In the case of Wärtsilä, Finnwatch visited three different locations in order to verify Wärtsilä's reporting. Even though Wärtsilä was reporting that they had performed extensive audits that covered over 95% of its suppliers, it was discovered that the visited location had never been audited. The information provided in the annual report did not match with this finding. Not only is this suspicious but the misconduct violates Finland's Securities Markets Act. This is an example why it seems that Wärtsilä is having issues monitoring the behavior of its suppliers. When visiting the factory in India, the researcher noted that occupational safety was well taken care of. However, the employees interviewed were paid minimum wages and according to the report, it was lower that the living wage. This, however, is in accordance with Wärtsilä's Supplier Handbook, where it is stated that the wage should comply with the national minimum wage. When investigating the company's subcontractors, serious deficiencies in working conditions were discovered. Problems with occupational safety had been experienced which had led to serious industrial acci-

dents. The interviewed employees said that the company cheats in audits. The third visited site was a construction site. Similar issues with wages were discovered, and that the amount paid to the workers did not cover living costs. (Finnwatch 2015)

As Bansal (2005) suggests, all dimensions of the triple bottom line need to be supported to ensure an organization's sustainable development. Thus, a calculation for the score of sustainable development is suggested. A score of greater than zero would be required and disclosed in the organization's annual reporting. (Bansal, 2005: 206-207) Scoring suppliers on sustainability would produce more quantitative information rather than qualitative, which could delineate the criticism towards reports on sustainability.

Supplier sustainability practices in corporate reporting are examined in the next subsection.

4.2.4 Examples of Supplier Sustainability Practices in Corporate Reporting

Different aspects affect an organization's ethical, social, and environmental reporting. The importance of corporate reporting has been influenced by public pressure and growing media attention. Thus disclosures in corporate reporting could improve corporate image. Adams argues that reporting guidelines are used only as a guide in corporate ethical and environmental reporting. Decisions about what to include in the reports are largely based on the belief of what the stakeholders are interested in hearing. (Adams, 2002: 223-237)

Global Reporting Initiative is attempting to formulate a globally acceptable standard for sustainability reporting (GRI, n.d.). The dimensions included in GRI are illustrated in Figure 9 below.

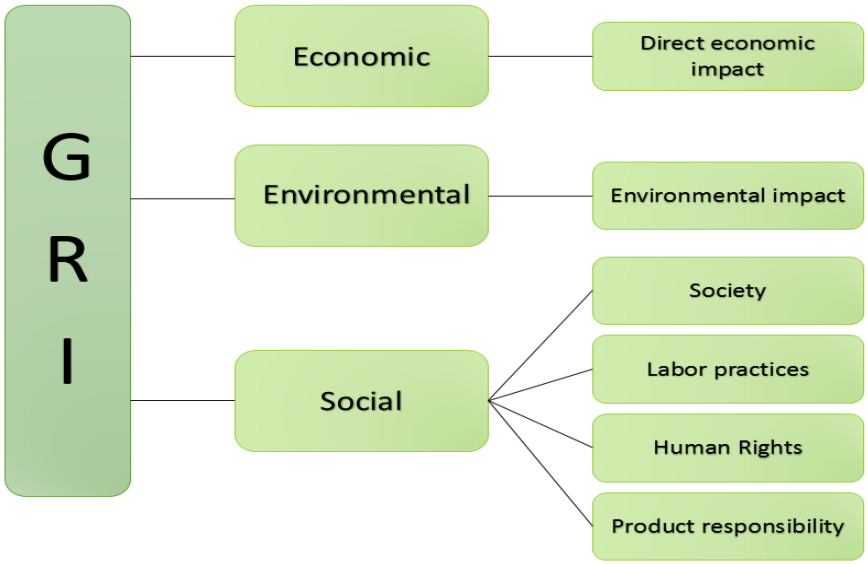


Figure 9. Dimensions in GRI framework.

As seen from Figure 9, GRI incorporates economic, environmental, and social dimensions in its reporting initiative. On an economic level, GRI is mainly interested in the external impacts of business activities on economic systems. On an environmental level, the environmental impact is assessed. One approach to this is the life-cycle assessment (LCA) of products. The social dimension seeks disclosure from society, labor practices, human rights, and product responsibility aspects. (Labuschange et al. 2005: 378-379; GRI, n.d.) In addition, GRI requires disclosure on notable changes regarding the organization's activities (Burritt and Schaltegger, 2014: 338). Many organizations have chosen to disclose these issues in their annual reports. However, the extent of the disclosure varies.

The variation in the aspects of sustainability can be seen, when examining available Annual Reports on *sustainability*. Four example cases of Finnish companies have been selected for examination. The selected companies are Cargotec, UPM, Stora Enso, and ABB. These companies have been selected based on their size, global supply network, and availability of sustainability reports. The different definitions of these selected cases are presented in Table 11 below.

Table 11. Supplier Sustainability aspects as presented in corporate reports.

	Case	*Supplier Code of Conduct*	*Strategy integration*	*GRI G4 guidelines*	*Responsibility*
1	Cargotec	-Compliance with law -Human rights and environment -Business conduct -Supplier relations -Work environment -Customer relations	Sustainability integrated into strategy	yes	Senior Vice President, Communications
2	UPM	-Human rights -Occupational Safety -Environmentally sound practices	Sustainability integrated into sourcing strategy	yes	Environment and responsibility team
3	Stora Enso	-Human and Labor rights -Occupational Health and Safety -Responsible business -Environmental Impact	Integrated into all key functions	yes	Sustainability Performance Network
4	ABB	-Human rights -Fair labor conditions and child labor -Health, safety, and environmental management -Material compliance and conflict minerals -Business ethics -Secure business -Procurement by suppliers -Inspection and corrective actions	Imbedded in business values	yes	Sustainability Board (Executive Committee)

As seen from Table 11, sustainability is an important part of the strategy for all the examined organizations. However, as seen, they all have a slightly different focus. The current reported practices of the examined cases are explained in more detail below.

The corporate report for Cargotec has integrated sustainability into its strategy. Cargotec has a Code of Conduct that its suppliers are expected to comply with. The focus areas in the Code of Conduct are *compliance with law*, *Human Rights and environment*, *business conduct*, *supplier relations*, and *work environment*. For supplier selection, management of labor practices, human rights, anti-corruption and the environment are noted as supplier selection criteria and new suppliers are audited on these criteria. (Cargotec, 2015)

The corporate report for UPM presents a broad program for sustainability integrated in their sourcing strategy. UPM's Code of Conduct includes *Human Rights*, *Occupational Safety*, and *environmentally sound practices*. In addition to the Code of Conduct, they

have a supplier code that includes *occupational health*. UPM conducts risk-assessment based supplier audits to its suppliers to ensure their sustainability and compliance to the company requirements. The risk assessment covers financial, quality, delivery, social, and environmental risks. The company has used environmental criteria, labor practices, and human rights criteria in addition to criteria for impact on society to screen all its primary raw material suppliers. (UPM, 2015)

Next, the corporate report for Stora Enso has a framework for its sustainability. This framework consist of *People and Ethics*, *Forest and Land use*, and *Environment and Efficiency*. This framework sets the basis and targets for the sustainability operation at Stora Enso. In addition to the framework, the company has a Code of Conduct for its suppliers. This consists of *Human and Labor Right*s, *Occupational Health and Safety*, *Responsible business* and *Environmental impact*. The company as formed a Sustainability Performance Network (SPN) which is responsible for sustainability. (Stora Enso, 2015)

Finally, the corporate report for ABB is published annually, with its sustainability part. Sustainability is built into product and technology development and is thus an integral part of business operations. The company has defined a detailed Code of Conduct for its own operation and personnel as well as for its suppliers. The Supplier Code of Conduct includes *Human Right, Fair labor conditions and child labor, Health, safety and environmental (HSE) management, Material compliance and conflict minerals, business ethics, Inspection and corrective actions,* and *SCM.* New supplier evaluation is performed by a third party, while existing suppliers are evaluated in-house. Existing supplier evaluation concentrates on quality, delivery, commercial, sustainability and risk management topics. Supplier development processes are based on the results of these evaluations. The company has a Supplier Sustainability Development Program that further develops the sustainability requirements at suppliers. (ABB, 2015)

As seen from the selected cases, companies publish sustainability reports early, either as a part of their annual report or as a separate report. The level of integration of sustainability varies from strategy integration to fairly tight integration of day-to-day business operations. Nonetheless, sustainability is seen as a vital part of responsible business and supplier management. All the examined case companies comply with Global Reporting Initiative (GRI) G4 guidelines with their reporting on sustainability. As mentioned, GRI is an independent institution that develops sustainability reporting guidelines which

are globally applicable for all organizations. Furthermore, GRI views sustainability through the concept of triple bottom line.

Summing up, organizations are putting efforts towards developing sustainability in their own operations as well as requiring the same from their suppliers. The examined companies have focused their sustainability efforts on different areas. However, human rights, health, safety, and environment, i.e., the triple bottom line, is included in all of them. Based on the examined cases, some companies have set up a department that is responsible for overseeing the sustainability activities. This has been done in cases when sustainability is an integral part of strategy and underlying functions. Moreover, all the case companies have developed a Code of Conduct to set a baseline for the suppliers. Supplier's compliance with the criteria is monitored by supplier self-declarations, on-site audits, and by conducting risk evaluations that covers several other aspects including sustainability.

4.3 Conceptual Framework of This Thesis

In this subsection, the best practice from the existing knowledge is presented. The findings from literature are summarized into conceptual framework of this Thesis. The framework combines organizational requirements with the business level actions. The conceptual framework is presented in Figure 10 below.

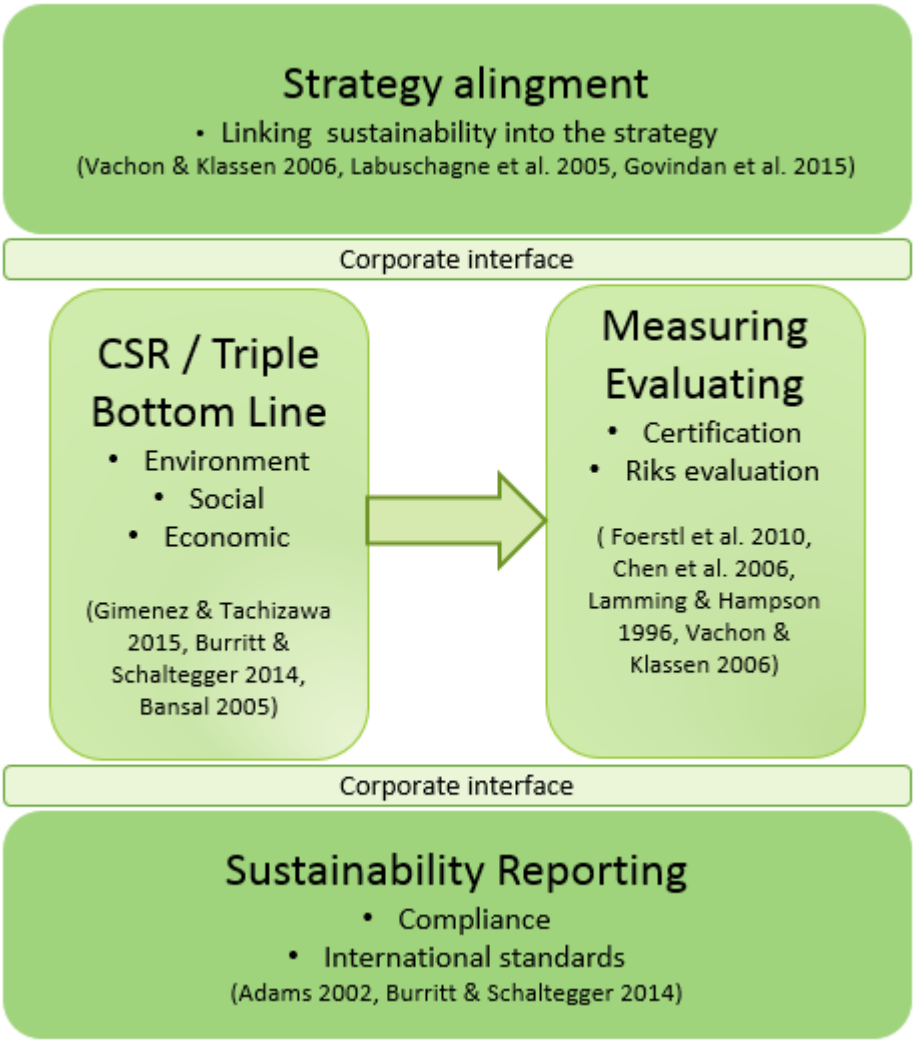


Figure 10. Conceptual Framework for Supplier Sustainability Evaluation.

As seen from Figure 10, the conceptual framework of this Thesis is built from four elements defining sustainability and its evaluation in business practice. These four elements of supplier sustainability evaluation are: (*a*) strategy alignment, (*b*) corporate social responsibility, emphasizing the triple bottom line approach, (*c*) measuring and evaluating sustainability, and (*d*) sustainability reporting. The alignment with strategy derives from the corporate strategy. Strategy and the organization's level of disclosure determine the approach to CSR. This determines the extent and methods for sustainability measurement and evaluation. This logical construct needs to link the business and its operation's sustainability practices with the CRS focused supplier measurement and evaluation process. The operation-level sustainability practices create input for the corporate-level sustainability reporting. These four elements are summarized below.

First, incorporating sustainability into *strategy* enables organizations to align their sustainability targets with the day-to-day operations. An organization's sustainability efforts can be managed through strategy alignment (Govindan et al. 2015). When aligning of the business functions with the sustainability embedded strategy, the supply chain is reformed to be more sustainable. The level of the integration (Aguilera et al. 2005) determines the extent of the organization's commitment. The commitment determines the actions towards sustainability taken in the organization as well as within its supply chain. By integrating sustainability closely to the business functions by aligning with company strategies, sustainable development is inherent.

Second, *Corporate Social Responsibility* and the company focus on sustainability form the basis for the supplier sustainability evaluation. Often, CSR consists of three dimensions which are economic, environmental, and social aspect, i.e., the triple bottom line. Sustainability derives from the intersections of these three aforementioned dimensions (Bansal, 2005). Corporate strategy guides the CSR of an organization.

Third, *measuring and evaluating* sustainability can be either based on monitoring the supplier or on supplier collaboration. The level at which the organization is involved in the sustainability process in its supply chain derives from the company's SCM practice. Sustainable supply chains need to be monitored and evaluated (Foerstl et al. 2010) but the level of the practices depend on the chosen approach. Measuring and evaluating suppliers on sustainability can be resource intensive. For this reason, different approaches are used.

Finally, organizations are increasingly *reporting* on their sustainability initiatives. Stakeholder pressure in this area is partly contributing to this. Global awareness on improving sustainability has been a driver for organizations to develop their own guidelines for suppliers. Compliance with the applicable laws and regulations is a basis for the guidelines. In addition, several international standards set constraints to organizations.

Corporate strategy and the chosen level of disclosure on reporting sustainability practices guide the overall sustainability actions in an organization. The corporate strategy is connected to the operational functions through an *interface*. This directs the strategic decisions into different functions within the organization which then forms the basis for measuring and evaluating sustainability. Actions within the business functions direct the

results to the corporate functions, i.e., to reporting. This forms the second interface between the operational functions and corporate level functions. Combined, these elements form the conceptual framework of sustainability and sustainability evaluation within an organization.

These four elements of the conceptual framework define sustainability and its evaluation. Next, the conceptual framework is applied to develop a supplier sustainability process and a supplier sustainability evaluation template for the case company.

5 Building Proposal for Supplier Sustainability Evaluation

This section merges the results of the current state analysis and the conceptual framework. First, an overview of the proposal building stage is presented. Second, the findings from the data collection 2 are presented. Third, a draft proposal of the SSE is presented.

5.1 Overview of the Proposal Building Stage

The proposal for the SS process in this study is built in three steps. First, the CSA results (Data 1) and the finding from best practice (CF) form the starting point for a discussion with the stakeholders in the sustainability evaluation process. As soon as this is introduced to the stakeholders, the proposal building stage begins. It incorporates the stakeholders' suggestions (Data 2) into the results obtained previously and builds from the existing SE practices towards the extended SS process.

As described in CSA (Data 1, Section 3), HQ of the case company has been conducting extensive supplier sustainability audits. The two business units, however, are lacking a systematic SS practice. Business unit 1 has a global process for conducting supplier evaluations. This global evaluation includes a limited and subjective sustainability evaluation. Business unit 2 does not have a global process for supplier evaluations. The local practices in each location varies considerably. As shown, the one example location has an extensive, built-in sustainability evaluation process whereas the other example location lacks a supplier evaluation process for existing suppliers completely.

Based on identified best practice summarized in the conceptual framework (CF), organizations engage in two types of practices when it comes to sustainability and its evaluations. Organizations can either take the reactive approach where efforts are concentrated on supplier monitoring. This includes requiring different sustainability documents and certifications from each supplier. Organizations can choose to take a more proactive approach and involve themselves in sustainable collaboration with the supplier. Corporate reporting influences the sustainability practice and when GRI is used, reporting is influenced by the GRI framework.

The proposal was built based on the findings from the current state analysis and HQ expectations together with the best practice. Figure 11 below expresses the formulation of the proposal from these elements.

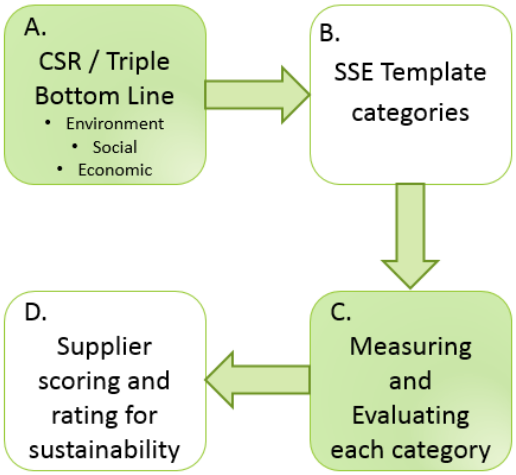
Results of CSA, Data 1		*CF, best practice*		*Suggestions from stakeholders, Data 2*
1. No SSE in supplier evaluation (on BU-level) 2. Need for a hands-on SSE block 3. Need for a similar method for evaluating sustainability (on BU- level)	+		+	1. All areas need to be evaluated 2. Focus on most relevant issues 3. Take into account the available resources and knowledge base 4. Produce enough information for reporting

Figure 11. Logic of the proposal building in this study.

Figure 11 shows the logic of building the proposal in this study. The findings of CSA (Data 1) are noted in the left, whereas suggestions from Data 2 are shown on the right. Building of the proposal is influenced by the conceptual framework, in the middle. The elements presented in the conceptual framework influence the proposal on the business unit level. These elements are the case organizations triple bottom line approach and measuring and evaluating supplier sustainability performance, which both derive from the business strategy and corporate level strategy. TBL approach defines the categories for supplier sustainability measurement and evaluation. Based in the template for measuring and evaluating suppliers, supplier scoring and rating is formed for stakeholder disclosure.

The proposal is built next by joining forces with key stakeholders. First, a discussion with HQ was conducted. The purpose of this discussion was to establish the criteria for SSE from the perspective of HQ. The requirements derive largely from laws and regulations but stakeholders are requesting more information as well. In addition, the outlines of the

proposal were drafted in this discussion. Second, two persons from business unit 1 contributed to the proposal building phase. Two individual, semi-constructed interviews were held, one with each of the informants to gather their input on the proposal. Both of the informants were asked the same three questions: (1) what areas of sustainability do they see as most important; (2) how can supplier sustainability evaluation be executed; and (3) how do they see sustainability linking to strategy. Third, based on the data gathered from the key stakeholders combined with the best practice from literature, the proposal is built.

Suggestions put forward by the stakeholders for proposal building are discussed in detail in the following subsection.

5.2 Findings of Data Collection 2

Key stakeholders participated in the supplier sustainability evaluation template proposal building. The ideas collected from Data stage 2 are collected into Table 12 below. The ideas are grouped in four stages based on the conceptual framework.

Table 12. Data 2, Stakeholder input on proposal building.

Stage in the SSE (based on CF)	*Ideas (pulled together from CSA, CF and Proposals)*	*Suggestions from key stakeholders*
Stage 1. Strategy alignment	Sustainability should be integrated with the company's sourcing strategy	Sustainability should be integrated with the company's sourcing strategy. We have different levels of sustainability (company, unit, local). They are not yet integrated fully with the company strategy, but need to be.
	Drivers in sourcing, including sustainability aspect as a key driver	Shift in focus of drivers is needed. Currently, quality, service, and price are key drivers. Strategic targets for sustainability should be specified in both business units.
	Supplier involvement	Sustainability needs to be "sold" to the supplier without compromising the key strategic drivers.
	Sharing the SSE responsibility	Roles and responsibilities in the current supplier evaluation process are not clearly communicated to HQ. The responsibility of sustainability at BU level is unclear.
	Motivating suppliers to engage in sustainability improvements	Suppliers need to be motivated to improve their performance on sustainability matters. The benefits of sustainable practices is not clear.

	Make sure sustainability is included into supplier strategy	Suppliers should have sustainability also included in their business strategy in order to ensure the sustainability of the entire SC.
Stage 2. Triple Bottom Line	Various aspects of sustainability are included (economic, environmental, social), which can be split even further	We need each of the five aspects to be clearly distinguishable in the SSE (HR, HSE, SCM, product stewardship, compliance with law and company requirements).
	Aspects of SSE	These aspects will each have a different ”weight” in the company SSE.
	Environmental protection	Supplier to indicate that it has taken all the necessary steps to protect the environment with the proper handling of chemicals.
	Environmental protection	Calculations how much suppliers strain the environment with their business activities.
	Environmental aspects	Supplier to indicate that product radiation has been dealt with.
	Single-source suppliers, monitoring their SC	Ensuring good sustainability practices are extended into the SC of the supplier. Same KPI’s or values to be used to evaluate the performance of each supplier’s supplier.
	KPI’s	Suppliers should have KPI’s in use to provide evidence of their sustainable operations and performance.
	Working conditions	How suppliers take HSE issues into account in their operations. Are work clothes provided? Do they use PPE’s?
	Available resources	Does the supplier have electricity available 24/7?
Stage 3, Measuring and evaluating	Scoring	The evaluation should include some kind of score.
	Self-assessment for suppliers	Supplier self-assessment practice extended to both business units, including the current suppliers.
	Supplier manual	Supplier manual that would combine all the necessary documents and corrective action plans.
	Auditing SC’s	Suppliers to produce evidence that they are monitoring and evaluating their suppliers, with action plans.
	Working conditions	Evaluate suppliers working conditions and how safety issues are taken into consideration in practice.
	Handling of incidents	Evaluate the suppliers on their improvement actions related to work related injuries and accidents. Supplier to provide information that it has investigated accidents. Supplier to provide LTIF figures.
	HSE	Is health care provided to the employees?
	Number of suppliers to be audited on sustainability	More suppliers need to be evaluated on their sustainability.
	Time requirements for sustainability evaluation	Usually SE last from one to two days. In one day audit, three hours could be spent on sustainability issues.
	Training	Training for sustainability issues needs to be provided internally.
	Competence	The questions included in the audit need to be simple to verify and evaluate.
	Corrective actions	Corrective actions suggested in audits need to followed up at the BU level.

	Timeline and plan	Timeline for implementing the corrective actions needs to be defined and followed up upon.
	Underperforming supplier	In case corrective actions are not implemented in the given timeline, plan for supplier exit or for suspending the supplier temporarily.
Stage 4, Reporting	Cross-functional availability of audit reports	Visible business practices for all the divisions, i.e., access to the reported findings.
	Annual reporting	HQ reports how sustainability issues are handled in the company. These same issues need to be addressed at the BU level.
	Annual reporting	BU's need to be able to provide adequate sustainability information of their suppliers.
	Roles	Responsibilities of conducting sustainability evaluation are unclear within the organization.

As Data 2 collected and combined in Table 12 above shows, the interviews and discussions with the key stakeholders resulted in a plethora of ideas. In order to create a proposal for a supplier sustainability evaluation, the ideas from the informants need to be carefully analyzed and incorporated into the proposal. The received input shaped the process of developing the initial proposal. As evident from the HQ statement below, the target is not to change the current practice completely.

> *It is not the goal to train the personnel to be experts on sustainability matters since it is not our core competence. The target is that information could be more easily shared with the business units and HQ.*
>
> *Head of Sustainability, HQ*

The knowledge base of the personnel conducting supplier evaluations is diverse. For this reason, it cannot be expected that local laws and legislation of the supplier location are necessarily known to the case company personnel. However, this does not mean that HSE, human rights and other relevant sustainability issues could not be evaluated. This might still require additional training, but the fundamental idea is to approach sustainability issues in a simple yet extensively descriptive manner. Furthermore, the primary need of the case company is to have access to the relevant information:

> *HQ reports how matters are dealt within the whole organization. This means that the same issues should be somehow handled in the business units. The need for reporting comes from laws and regulations but in growing numbers other stakeholders are requiring it as well.*
>
> *Head of Sustainability, HQ*

The company annual reporting covers both business units, and thus the information received from each business unit would ideally be similar and comparable. Upon having access to sustainability information from each business unit, the case company corporate reporting could improve.

Based on the interviews, the importance of some of the five categories of sustainability is viewed differently at the business level from how it is viewed at HQ. The outcome of the interviews shows that managing the entire supply chain is the most important aspect.

> *The business unit uses so called single source suppliers. This means that the supplier sells the ready-made part for the case company. For this process the supplier may use its own supplier network. A big challenge is how to monitor these suppliers and ensure that the case company requirements are met. When dealing with big suppliers, this issues is not that critical because they are most often performing the work by themselves at their own premises. I see it as being most important to monitor the entire supply chain at the supplier.*
>
> Quality Manager, Quality and HSE, BU1

The above raises the very important notion of extending responsibility for good sustainability practice throughout the entire supply chain. Ensuring the suppliers supplier's compliance with the case company requirements, however, and even with laws and legislation, is based on the case company's suppliers' declaration of conformity and thus trust.

All areas of sustainability are equally important from the HQ perspective. However, only the categories that could most likely implicate risks to the case company are investigated in-depth. The reason why some areas are not considered as important as others is largely dependent on the new supplier selections process.

> *Of course there is a lot of room for improvement at our main suppliers, but I can honestly say that there's nothing that would violate our requirements. This is due to the good practice in our new supplier selection process*.
>
> Quality Manager, Quality and HSE, BU1

Due to a thorough new supplier selection process, the existing suppliers have already undergone a sustainability evaluation. Thus, the case company's suppliers are already screened for the most obvious violations. However, sustainability issues can be improved immensely, especially in high-risk countries.

The supplier sustainability evaluation proposal is drafted based on the aforementioned ideas. These ideas are translated into the *process aspect* of supplier sustainability and into the *tool aspect*. The *process aspect* consists of four core steps, i.e., strategy alignment, triple bottom line, measuring and evaluating sustainability, and sustainability reporting. These four core steps guide the general process of sustainability in the case company. This process is managed mainly at headquarters. Top management prepares the company strategy and monitors that the business functions implement it into their operations. Furthermore, the reporting is the responsibility of management. The triple bottom lime aspect derives from the reporting needs. Measuring and evaluating sustainability derives from all these steps. These aspects are not prescriptive but rather provide general guidance for the SSE. Flexibility of the SSE process is a primary consideration since the units need to be able to conduct the process in a light manner by themselves.

Therefore, another aspect is *the tool aspect*, which provides the business units the means to conduct SSE. The *tool aspect* supports the *process aspect* by providing the business units a system-integrated method of implementing the corporate requirements. This tool aspect is taken up for the Proposal below, where the SSE template is discussed.

The proposed template is the first step to implement an SSE practice. Therefore, the plan is to include the proposed template in the existing process. Based on the feedback from the business units, it is be decided later how to develop the SSE further.

5.3 Proposal Draft

Next, each element of the proposal is presented following the four core elements suggested for SSE. Based on this, an SSE template is proposed to address each element of SSE. The elements, i.e., stages, are presented individually below.

5.3.1 Stage 1. Aligning SSE to Corporate Strategy

Stage one is to align the corporate strategy with the business units' targets. Corporate strategy includes different aspects to improve the overall prosperity of the company. Sustainability is one of these aspects in the case company. When sustainability is included

in the company strategy, other functions need to be aligned with it in order to ensure that all the necessary aspects of sustainability are covered in the process. This would mean that sustainability is embedded into the purchasing strategy as well as to ensure the sustainability of the entire supply chain. However, more often other drivers, e.g., price, quality, and service level are seen as more important. This is true for the case company as well. Sustainability is lacking from the current procurement functions. The alignment with strategy is seen more in the internal communication and personnel attitudes than in the purchasing strategy.

In order to improve the overall sustainability target, incremental steps towards the targets need to be taken. A system for reporting individual sustainability efforts would provide overall methods for ensuring that different business functions are aligned with company strategy. Additionally, this would support the company disclosure level for its sustainability efforts. For this reason, the sustainability aspect needs to be implemented into the business functions, including procurement and purchasing. Improvements in sustainability efforts do not need to drive the operations but rather need to support the success of other aspects of the company strategy.

In addition to the qualitative targets, the case company has set quantitative targets for sustainability. These long-term targets are set to be reached in the next four years. However, developments in sustainability regarding those targets focus mainly on the case company's own functions. Such efforts could be extended in the supply chain to address the suppliers as well. However, this requires further steps to be taken to develop the sustainability process. Incorporating the SSE tool into the existing supplier evaluation process is a step towards aligning the business unit operations with corporate strategy.

5.3.2 Stage 2. Including Triple Bottom Line in the Proposal

Stage two incorporates triple bottom line into the sustainability improvement efforts. This aspect has already been considered in the strategy, thus this same aspect is important in the operations and tools. The economic aspect is often most important in allowing the organization to operate profitably over time. However, improving the two other aspects could enhance economic sustainability.

The proposed supplier sustainability process includes all the aspects of triple bottom line while the proposed template focuses on evaluating supplier sustainability on the basis of social and environmental aspects.

From these elements of the triple bottom line, human rights issues were experienced as a particularly difficult topic to evaluate in the context of supplier evaluations. Often the true circumstances at the supplier are revealed only when engaging in discussion with ground level workers. When conducting audits, often there is no possibility for such discussions. More often, there is not a common language between the auditor and the factory workers. In other words, the information available to the auditor is most likely obtained from the management. Thus the human rights-related answers may not be trustworthy or entirely accurate. However, because the case company has decided to disclose its effort on this front, including all the aspects of the triple bottom line is necessary.

5.3.3 Stage 3. Proposal of Measuring and Evaluating Sustainability

Stage three incorporates measurement and evaluation of sustainability into the proposal. Measuring and evaluating suppliers on their sustainability practices can be improved immensely by implementing a systematic approach throughout the case company. A common practice ensures the achievement of economic sustainability as well.

Implementing tools in the operation of the case company drives the change towards a more sustainable supply chain. The proposed template brings the aforementioned stages to the business unit level. The format aligns the functions to the strategy by taking a triple bottom line approach. Moreover, the proposed template provides questions which are fairly easy to verify and in addition disclose the true nature of the suppliers' practice on sustainability. In addition, when a scoring system is introduced, the development in supplier sustainability practices can be detected and observed.

Currently, the case company does not utilize a unified scoring system for conducting supplier audits. Scoring is used in only a few of the local supplier evaluation cases in BU2. For this reason, the suggested method of scoring is for standalone scoring that does not interfere with other scoring systems already used. The proposed score has been selected on the basis that it would provide enough information based on the score itself, but would not create too much variation amongst the scores.

The proposed tool for evaluating sustainability can be further developed as a part of a larger supplier sustainability process. The template involves the business units in a more sustainable business practice and develops a unified process in a simplified manner. A more progressive approach can be taken when a unified understanding of the urgency of the sustainability practices has been formed. This can be achieved with continuous improvement of the sustainability process.

5.3.4 Stage 4. Contributing to Reporting

Stage four integrates the previous stages into corporate reporting on sustainability. Furthermore, reporting guides the targets that are set in the corporate strategy. The level of disclosure as decided determines the extent of various aspects examined with regards to sustainability. The case company utilizes GRI guidelines in its corporate reporting on sustainability, which covers all the aspects of triple bottom line. However, the level of disclosure in corporate reporting is based on the corporate decision.

Due to the fact that the case company has decided to disclose information in its annual reporting from five aspects of sustainability, the same aspects remain in the proposal. These categories are *HSE*, *SCM*, *Compliance*, *Human Rights*, and *Product Stewardship*. Thus all these categories are included in the proposal. Furthermore, evaluating suppliers on the same aspects, the business unit strategy aligns more closely to the corporate strategy.

As seen from the current state analysis, HQ is not receiving the needed information for annual reporting in a timely manner. In addition, the information received is of different quality from each of the two business units. For this reason, the proposed supplier sustainability evaluation template would provide similar information on the supply chain from both of the business units. Furthermore, the proposed integrated supplier evaluation process would provide qualitative as well as quantitative information, which is needed for the reporting.

The initial proposal of the supplier sustainability evaluation template is presented in the next subsection.

5.3.5 SSE Template

The initial proposal for the SSE template for use by the business units in the case company is presented below. The proposed template consists of five categories which are presented separately below.

Category	Question	Answer	Evidence and comments	Scoring
I. HSE	1. Does the supplier have written health, safety and environmental (HSE) policy? *Score of 0: supplier does not have a policy; score of 5, extensive policy*		Comment on the level of disclosure, how this was verified and which aspects are covered. Provide notification of any severe deficiency.	0-5, zero being the lowest and five being the highest
	2. Does the supplier have a process for investigating accidents, is LTIF figure available? *Score of 0: supplier does not have a process; score of 5, process in use, LTIF information available*		Look for a written process, accident reporting practices, LTIF calculation, and evidence of continuous improvement.	
	3 .Do employees have adequate PPE's, work wear, and needed tools? *Score of 0: supplier does not provide PPE's and work wear; score of 5, no deficiencies detected*		Look for evidence at factory tour, report the findings.	
	4. Are first aid kits, fire extinguishers eye washing /shower stations available? Score of 0: supplier does not have any of the required; score of 5, no deficiencies detected		Look for evidence at factory tour, report the findings.	
	5 .Are emergency exits clearly marked, clear from obstructions and unlocked? Score of 0: supplier does not have any of the required; score of 5, no deficiencies detected		Look for evidence at factory tour, report the findings.	

The first category, *HSE*, is suggested to comprise of five questions. The questions relate to personnel safety and working environment. These questions proposed in this category are suggested due to their nature. Each of the questions is simple to understand and partly easy to verify by the auditor only, yet the evidence required to prove the supplier's actions reveal plenty. The questions derive from the HQ sustainability audit as well as from the supplier self-evaluation form used in the local supplier evaluation process at BU2. Additionally, the questions partly correlate with questions used in the new supplier selection process currently practiced in BU1. The next two categories are presented below.

Category	Question	Answer	Evidence and comments	Scoring
II. SCM	1. Does the supplier have a documented process for its supplier approval process, are sustainability issues included in the process? Score of 0: supplier does not have any of the required; score of 5, no deficiencies detected		Report the level of disclosure, look for KPI's used and evidence of suppliers SCM process.	
	2. Are equal HSE and human rights issues required from the sub-suppliers Score of 0: supplier does not have any of the required; score of 5, no deficiencies detected.		Look for evidence of these practices and report the findings.	
III. Compliance	1. Does the supplier have a policy for anti-corruption practices? Are the employees trained for it? Score of 0: supplier does not have any of the required; score of 5, no deficiencies detected		Look for evidence of these practices and report the findings.	
	2. Does the supplier have a process for limiting unauthorized access to IP and design documents? Score of 0: supplier does not have any of the required; score of 5, no deficiencies detected		Look for evidence of these practices and report the findings.	

The second category, *SCM*, evaluates how each supplier monitors its own supply chain. The category consists of two questions. The questions proposed for this category derive from the interviews. Both of these points in the questions are mentioned as important. However, the evidence to prove these might be more difficult to obtain.

The third category, *Compliance*, evaluates each supplier's attitude towards corruption and how it manages intellectual property. Both of these areas are evaluated by its own question, thus having two questions in the third category. The next two categories are presented below.

Category	Question	Answer	Evidence and comments	Scoring
IV.Human Rights	1. Does the supplier use child labor? Score of 0: evidence of child labor (cause for terminating the contract); score of 5, no deficiencies detected		Look for evidence of policies for minimum age for the workers.	
	2. Are there signs of forced labor? Score of 0: evidence of forced labor detected (cause for terminating the contract); score of 5, no deficiencies detected		Look for evidence that workers are allowed to move freely and not demanded to live in supplier dormitories.	

V.Product Stewardship	1. Does the supplier conduct radiation measurements for inbound and outbound material? Score of 0: supplier does not have any of the required; score of 5, no deficiencies detected		Look for evidence of the measuring equipment and of the results.	
	2. Does the company have a process for handling hazardous material? Score of 0: supplier does not have any of the required; score of 5, no deficiencies detected		Look for information of the handling process and see how materials are stored and handled.	

The fourth category, *Human Rights*, assesses the supplier's human rights practices. The category consists of two questions. The questions are at a very basic level. The selection of these questions is based on the interviews. Human rights issues are viewed as very difficult to evaluate and thus evidence might be difficult to obtain in such an integrated evaluation.

The fifth category, *Product Stewardship*, assesses the supplier's material handling process. These points were mentioned in the interviews as being of high importance and thus were selected for the proposal.

As shown above, the proposed SSE template comprises thirteen questions. These questions are divided into five categories included in the corporate level reporting which utilizes the GRI framework. The number of questions in each category varies. Each question has an assigned score. The score for each question is between zero (*0*) and five (*5*), zero being the lowest and five being the highest. The total maximum score for the supplier is thus 65 points. However, the range from zero to five is not applicable for all the questions. The score and the way to evaluate each question needs to be further explained. Each question mentions what evidence the auditor needs to look for to prove the supplier's current conduct for each matter. This evidence determines the score given for each question. In addition, the results of the sustainability evaluation need to be analyzed and any improvement suggestion provided to the supplier. Furthermore, these suggestions need to include a timeline for implementing the suggested improvements. Based on the aforementioned steps, a new supplier evaluation process is scheduled.

The above presented SSE template forms the initial proposal for the supplier sustainability process, intended to be conducted by the business units as part of their existing supplier evaluation process. Next, this proposal is presented to the key stakeholders for review and feedback is collected before the final proposal is formulated.

6 Feedback for the Proposal

This section describes the formulation of a final proposal for the supplier sustainability process. First, the overview of Data 3 is presented. Second, the findings of Data 3 are discussed in more detail. Third, the final proposal of the supplier sustainability process including the SSE template is presented. Fourth, recommendations for the case company are given. Fifth, an action plan for the implementation of the process is presented.

6.1 Overview of the Validation Stage

The supplier sustainability evaluation template was presented in the previous section. This template forms an important part of the supplier sustainability process. The supplier sustainability process is suggested to be implemented as part of the existing supplier evaluation process currently utilized for existing suppliers. The initial proposal for the SSE template is presented to the key stakeholders for review. This feedback, received from the key stakeholders, forms Data 3 of this Thesis.

The feedback was collected from two key stakeholders. First, a discussion session with the Head of Sustainability from HQ was held. During this discussion, the supplier sustainability evaluation template was presented. Second, a similar discussion with the Supplier Quality Manager from BU1 was held. In both, the content of the template was discussed and feedback from the aforementioned stakeholders was collected. In addition, next steps for supplier sustainability were discussed. The feedback received for the initial proposal is utilized in forming the final proposal for the supplier sustainability process and more importantly, the template. The findings of data collection 3 are discussed in more detail in the following subsection.

6.2 Findings of Data Collection 3

The initial proposal for the SSE template was presented to the key stakeholders. The participants evaluated the categories included in the proposed template and the individual questions, including the basis for the scoring of each question. The feedback received is summarized in Table 13 below.

Table 13. Summary of feedback to the initial proposal.

Data 3 summary		
Stakeholders: Head of Sustainability Supplier Quality Manager, BU1	Positive	"Proposal looks good." "Contains all the basic elements." "Questions are simple enough." "I really like this question." "Maybe this could be extended to new supplier selection as well."
	Improvement needs	"In HSE-category, Q2: use KPI's instead of LTIF figure." "Communicate with HSE team to see if the new supplier evaluation questions could be merged with these." "Scoring from zero to five may not be applicable for all the questions." "Instructions how to use the template need to be written."
	Other comments	"Question related to forced labor is extremely difficult to investigate."

Generally, the initial proposal was received well and the feedback received was positive. As seen from Table 12 above, improvement needs were also suggested. Based on this feedback, the suggested template is built in a co-operative manner utilizing the needed resources.

> *The persons interviewed for proposal building are the right people to give comments to the points that need to be audited.*
>
> Head of Sustainability, HQ

As evident from the feedback received from HQ, the input utilized from the key stakeholders to build the proposal was valuable. Persons participating in the supplier evaluations and visiting the suppliers' facilities are more likely to possess the insight for building the template. These same people have years of experience to point out matters which need to be included in the template.

Getting the right people involved in building the proposal was vital. However, an important aspect also was covering all the necessary aspects of sustainability. The existing categorization of different aspects was retained in the proposal.

> *Good that all the categories are covered. It's good that the template has information about what kind of evidence is needed.*
>
> Head of Sustainability, HQ

These five categories, i.e., *HSE*, *SCM*, *Compliance*, *Human Rights*, and *Product Stewardship*, are largely used in external communication. Thus the terms are not familiar to all the employees. However, the issues covered in these categories derived from the interviews with the stakeholders. In addition to categorizing the questions, necessary evidence for documentation of the situation at the supplier is requested. This is noted as being a positive aspect for ensuring that the correct areas are investigated.

Despite the overall form of the proposal being noted as good, a requirement for improvement arose. The needed improvement is an instruction to further explain the template. This instruction forms an important tool for the business units to use and to further develop the proposed template.

> *It would be good to add explanations and guidance for the questions and scoring.*
>
> Head of Sustainability, HQ

Absent additional explanation of the questions, the template does provide adequate guidance. For further development of the template, it was suggested that instructions need to be written. These instructions would provide further guidance on the evidence that must be provided for each question and what score the supplier receives based on the evidence provided. Additionally, the instruction mentions the minimum target level that the supplier much reach for every question. Furthermore, in a few cases a low score requires immediate termination of any business relationship with the supplier. These must be pointed out in the instructions. This instruction needs to be included in the final proposal.

> *The template should of course be piloted and I think that we can fit this into this year's plan.*
>
> Supplier Quality Manager, BU1

As noted in the discussions, the template ideally would first be piloted before being integrated into the process. However, template finalization needs to be completed first, after which an appropriate pilot supplier may then be nominated. Furthermore, the template itself could be extended to cover a new supplier approval process, since the template does not currently evaluate the suppliers on their sustainability.

The suggested improvements are taken into account in the final proposal. The final proposal for supplier sustainability process including the supplier sustainability evaluation template is presented in the following subsection.

6.3 Final Proposal for Supplier Sustainability

After collecting feedback from the stakeholders and implementing it in the initial proposal, the final proposal for supplier sustainability evaluation template was formed. The final proposal is presented in Table 14 below.

Table 14. Final Proposal for Supplier Sustainability Evaluation template.

Category	Question	Answer	Evidence and comments	Scoring
HSE	Does the supplier have written health, safety and environmental (HSE) policy? Score of 0: supplier does not have a policy; score of 5, extensive policy		Comment on the level of disclosure, how this was verified and which aspects are covered. Notify any severe deficiency.	0-5, zero being the lowest and five being the highest
	Does the supplier have a process to investigate accidents, are KPI's used? Score of 0: supplier does not have a process; score of 5, process in use, KPI's used		Look for written process, accident reporting practices, KPI's and evidence of continuous improvement.	
	Do employees have adequate PPE's, work wear, and needed tools? Score of 0: supplier does not provide PPE's and work wear; score of 5, no deficiencies detected		Look for evidence at factory tour, report the findings.	
	Are first aid kits, fire extinguishers eye washing /shower stations available? Score of 0: supplier does not have any of the required; score of 5, no deficiencies detected		Look for evidence at factory tour, report the findings.	
	Are emergency exits clearly marked, clear from obstructions and unlocked? Score of 0: supplier does not have any of the required; score of 5, no deficiencies detected		Look for evidence at factory tour, report the findings.	
SCM	Does the supplier have a documented process for its supplier approval process, are sustainability issues included in the process? Score of 0: supplier does not have any of the required; score of 5, no deficiencies detected		Report the level of disclosure, look for KPI's used and evidence of suppliers SCM process.	
	Are equal HSE and human rights issues required from the sub-suppliers? Score of 0: supplier does not have any		Look for evidence of these practices and report the findings.	

	of the required; score of 5, no deficiencies detected.			
Compliance	Does the supplier have a policy for anti-corruption practices? Are the Employees trained for it? Score of 0: supplier does not have any of the required; score of 5, no deficiencies detected		Look for evidence of these practices and report the findings.	
	Does the supplier have a process for limiting unauthorized access to IP and design documents? Score of 0: supplier does not have any of the required; score of 5, no deficiencies detected		Look for evidence of these practices and report the findings.	
Human Rights	Does the supplier use child labor? Score of 0: evidence of child labor (cause for terminating the contract); score of 5, no deficiencies detected		Look evidence regarding policies for a minimum age for the workers.	
	Are there signs of forced labor? Score of 0: evidence of forced labor detected (cause for terminating the contract); score of 5, no deficiencies detected		Look for evidence that workers are allowed to move freely about and not required to live in supplier dormitories.	
Product Stewardship	Does the supplier conduct radiation measurement for inbound and outbound material? Score of 0: supplier does not have any of the required; score of 5, no deficiencies detected		Look for evidence of the measuring equipment and of the results.	
	Does the company have a process for handling hazardous material? Score of 0: supplier does not have any of the required; score of 5, no deficiencies detected		Look for information regarding the handling process and see how materials are stored and handled.	

As seen from Table 14, minor changes were implemented based on the feedback received. The suggested categories and the number of questions remained as proposed, and only minor change to one question was made. This change concerned question two in the HSE category. Based on the feedback, lost time injury frequency (LTIF) is not often measured at suppliers. However, measuring the way suppliers report and investigate incidents and whether they use KPI's to monitor safety was mentioned as being more important. This feedback was taken into account and the template was modified accordingly.

The SSE template is suggested to be included in the existing process for supplier evaluation for existing suppliers. The SSE template is suggested to be implemented into both

business units. Figure 12 below illustrates the current supplier evaluation process with the suggested supplier sustainability extension.

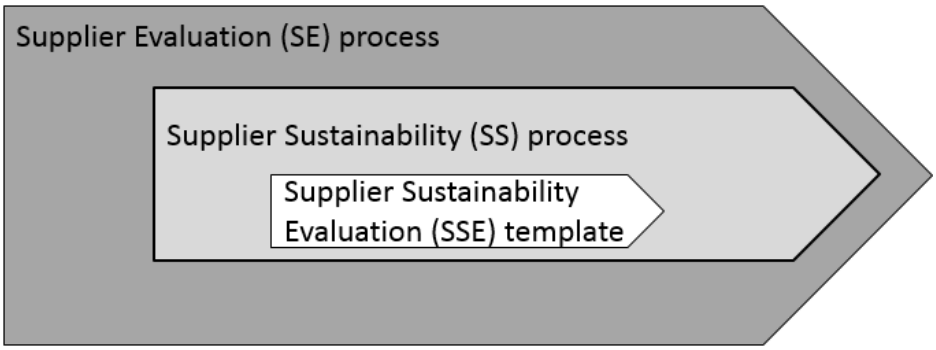


Figure 12. Supplier evaluation process extended with the SS process including SSE template.

As seen from Figure 12 above, the SSE template is suggested to be included in the supplier sustainability process that is built in to the existing supplier evaluation process. Furthermore, the SSE template requires visiting the supplier facilities, thus the implementation of the template would be within the current audit process. Extending the current process to include supplier sustainability is a logical continuum to the existing process.

Based on the conducted research, recommendations for the case company are presented in the next subsection.

6.4 Recommendations

The researcher of this Thesis interviewed key stakeholders in the case company. Based on these interviews, later discussions, and internal documents, as well as best practice, recommendations for further consideration are given as provided below.

First, as HSE has been noted as one of the prioritized functions in the case company. Based on the interviews and discussions during this Thesis process, it seems that sustainability is often thought to be a synonym for HSE. Additionally, in order to increase the awareness of suppliers, the case company needs to raise awareness by its own personnel. More extensive training of sustainability issues is needed. Sustainability training

would not only improve sustainability issues in the case company's own sites but educate the personnel to act as advocates of sustainability as well.

Second, collaboration with the suppliers is essential in developing sustainability. The level of collaboration between different functions and each supplier needs to be increased. In addition, the business units must increase collaboration with each other to share the best practices and development ideas. Increasing communication and collaboration among the business units and headquarters could result in a more unified operation. A sustainability team comprised of each business unit Quality manager and the Head of Sustainability could form this team and develop future planned actions together.

Third, sustainability needs to be implemented into the purchasing strategy. Currently, the corporation strategy is implemented in the case company's own premises but in order to extend the practices to suppliers, more effort is needed. Even though a supplier self-declaration is not the best way to prove a supplier's sustainability, it does, however, give some indications of it. Supplier self-evaluation could be further developed to include sustainability issues which could later on be verified in the on-site audits. In addition, these self-evaluation questions would be regularly evaluated and developed as the supplier evaluation process develops.

Fourth, internal documentation needs to be communicated more clearly throughout the business units. The current practices are not enough, as became evident from the current state analysis of this Thesis. Training for procurement and quality personnel is required. In addition, the training needs to be extended to cover all personnel, prioritizing the persons who are most likely to visit suppliers.

Fifth, currently living wage is not taken into account in the annual reporting at the case company. However, as seen from the case example, NGO's are evaluating the local practices in risk countries and comparing the employee wages to the local price level and living wage. There is a potential for risk element for the case company if this issue is not taken into account.

Finally, a deficit in the proposal is recognized. As only participants from business unit 1 and HQ participated in the building and validation of the proposal, the supplier sustainability evaluation template needs to be examined in more detail in the context of business unit 2 before its use is extended to it as well. However, sustainability issues are fairly

standard in nature, meaning that there should not be major alterations needed, and would thus be applicable to both business units.

In addition to the recommendation presented in this subsection, an action plan for implementation of the supplier sustainability process is presented in the following subsection.

6.5 Action Plan

This Thesis proposed a supplier sustainability process to be integrated into the current supplier evaluation process. The SS process includes the supplier sustainability template that was included in the proposal. In order to test that the improved supplier evaluation process is providing the needed information for the case company, the process needs to be piloted. After piloting the SS process that includes the SSE template, the proposed template in the SSE process needs to be assessed according to the results. After piloting the template, and the whole process, the following actions plan is suggested. This is presented in Figure 13 below.

Action plan for extended supplier sustainability process				
Timeline	within 1 month	within 3 months	within 6 months	within 12 months
Action	Piloting completed, adjust the template if needed	Extend the process for all existing suppliers	Extend the process for new supplier evaluation process	Implement the process in BU2
Resource	Global Supplier Quality Manager (BU1) in co-operation with local HSE team and the Head of Sustainability	Global Supplier Quality Manager (BU1)	Global Supplier Quality Manager (BU1)	BU2 procurement and Quality team, supported by Head of Sustainability supporting

Figure 13. Action plan for Supplier Sustainability process implementation.

Figure 13 above presents the action plan to implement a supplier sustainability process to cover the entire organization within the next 12 months. The action plan is divided into four steps, each assigned to a certain resource and to be implemented within a given timeline. First, after the pilot has been completed, the proposed SSE template needs to be re-evaluated and modified accordingly if needed. This is to be completed within a month of the initial pilot. Due to the current responsibilities of SE process in BU1, this action is assigned to the Global Supplier Quality Manager to work in co-operation with

the local HSE team and HQ Head of Sustainability. Second, the proposed process would be extended to every supplier evaluation conducted in BU1. This needs to be implemented within three months after the previous step. This action is assigned to the Supplier Quality Manager in BU1. Third, the SS process would be extended to cover new supplier selection process. The suggested timeline for this is six months and the Supplier Quality Manager in BU1 is responsible for this action as well. Fourth, the SS process would be implemented in BU2 in the same manner within the next twelve months.

Next section summarizes the study and considers its validity and reliability.

7 Discussion and Conclusions

This section summarizes this study and discusses the next steps. The section concludes in an evaluation of the Thesis.

7.1 Summary

This study concentrated on defining sustainability in the case context. Throughout the case company, sustainability is acknowledged as an important factor in business. Improvements in the process for evaluating and measuring sustainability of suppliers is needed in order to achieve a more sustainable supply chain. The purpose of this study was to address this challenge by suggesting a supplier sustainability process that could be implemented as part of the existing supplier evaluation process.

To reach, this study was carried out in four stages. First, the current practice at the case company was analyzed. The interviews and discussion were conducted at the case company HQ and each of the two business units. Based on these interviews and discussions, the current practices were investigated for conducting supplier evaluation. The analysis found that the supplier evaluation processes at the case company are diverse. In addition, sustainability is not systematically implemented and monitored in the business units. Second, best practice was searched from recent literature on the subject of supplier sustainability evaluation. The findings were collected into the conceptual framework of this Thesis. The framework consists of four elements, i.e., alignment with corporate strategy, corporate social responsibility with focus on the triple bottom line aspect, measuring and evaluating sustainability, and corporate reporting on sustainability. Based on these findings, the proposal was formulated for a supplier sustainability process and the supplier sustainability evaluation template. The proposal was built in close cooperation with the key stakeholders. Fourth, the initial proposal was presented to the key stakeholders for feedback. The received feedback was considered and implemented into the final proposal for the supplier sustainability process and the supplier sustainability evaluation template. The template is suggested to be used as part of the current supplier evaluation process at the business units.

When the proposal is implemented, the extended process for supplier evaluation will improve overall sustainability in the case company and will contribute to corporate reporting on sustainability. As the company has set the target to be a leader in sustainability within the industry by 2020, the suggested supplier sustainability process is a step towards that goal. In addition, the supplier sustainability evaluation template provides a tool for risk management. The risks facing, e.g., the brand or the image of the company is a serious threat. The proposed sustainability process incorporates risk management in the daily operations of the business units. Implementing the supplier sustainability process into both business units will allow both qualitative and quantitative information of sustainability to be obtained from each of the business units.

Finally, the proposed action plan suggests the implementation of the supplier evaluation process into the whole organization. Only when implemented can the results in sustainability improvement be seen. Implementing the proposal within the timeline presented in the proposed action plan would mean that sustainability information is available for annual reporting from all the supplier evaluation for 2018 report.

7.2 Practical/ Managerial Implications

This study presented a process that includes a supplier sustainability evaluation template that can be included in the existing supplier evaluation process. Prior to this study, the topic of supplier sustainability was not carried out in a systematic way in the case company.

Based on the proposed template, an action plan for implementing the extended supplier sustainability evaluation process is presented in section 6.5. The action plan suggests a timeline for implementing the Supplier Sustainability process and the proposed template throughout the case company.

For improving sustainability further, this Thesis suggests the following next steps:

- insist on piloting the supplier sustainability template
- monitor that the process is implemented into both business units
- allocate required resources
- improve internal communication and encourage learning
- require input from the business units.

When the above mentioned steps are taken, sustainability of the entire organization can be improved. Currently, various internal documents exist which instructions on various sustainability issues. They are, however, scattered and difficult to find and use. These documents need to be streamlined and made easier to access. In addition, the roles and responsibilities need to be defined more clearly. For this reason, forming a sustainability board was suggested in section 6.4. This would define and strengthen future sustainability efforts. Furthermore, a Sustainability Manager should be nominated to act as a process owner for the proposed process companywide. The Sustainability Manager would act as a contact person and develop the process further.

7.3 Evaluation of the Thesis

The focus in this study was to find practices and tools for conducting supplier sustainability evaluation as part of a supplier evaluation process. This information was to be utilized for developing the current SSE practices recognized in the current state analysis. To evaluate the current practices in sustainability within the different functions of the case company, current state analysis was conducted. Data gathered in stage 1, together with best practice from existing knowledge, formed the basis for the proposal of supplier evaluation for the case company. Based on the challenges recognized in the interviews, best practice was searched for from academic and business literature. This combined with data gathered in stage 2, formed the final proposal.

The Thesis is next further evaluated based on its outcome versus objective and to its reliability and validity.

7.3.1 Outcome vs Objective

The objective of this Thesis was threefold. The objective was (a) to propose a supplier sustainability (SS) process that should be used in the case company, (b) propose a supplier sustainability evaluation (SSE) process to be applied to existing suppliers and integrated into the current SE processes at the case company, and (c) create an SSE template to be used as a part of the of the SE process.

This Thesis proposed an SS process that consists of the proposed SSE process. For the SSE process, an SSE template was proposed. This SSE template was built in co-operation with the key stakeholders. The SSE template is suggested to be used as a part of the larger SE process currently executed at the case company's business units.

The research question of this Thesis was formulated as: *How should supplier sustainability evaluation be done and integrated in the current supplier evaluation processes at the case company?* Accordingly, the outcome of this Thesis answered this question by proposing a supplier sustainability process and a supplier evaluation template that is integrated into the existing supplier evaluation process, the objective was reached. Thus, when comparing the outcome to the objective of this Thesis, they are congruent with each other.

7.3.2 Reliability and Validity

The plan for evaluating validity and reliability in this Thesis was presented in Section 2.3. As mentioned, the plan relied on the case study methodology selected for this Thesis. The study utilized interviews, internal documents, and observations as the main source of data. Due to triangulation, i.e., the use of several data, the validity of the study is increased. As validity of a study is evaluated based on the effectiveness of the chosen methods to reach the desired outcome, the selected methods served their purpose. The key stakeholders influencing supplier sustainability matters within the case company are few and they all contributed into achieving the outcome. All the interviews are recorded in the field notes to maintain the evidence trail. When assessing the construct validity of the study, the methods utilized in building the proposal validated the outcome.

In addition, reliability is increased by the method used to formulate the interviews and discussions. In each data collection stage, the key stakeholders were asked the same questions. Furthermore, the case company internal documents related to sustainability were carefully analyzed to increase the reliability of the study. As mentioned above, the reliability of the study is enhanced by documenting the data collected throughout the process. In addition, the best practice for conducting supplier sustainability evaluation was searched from recent literature. This was used in building the proposal of this Thesis. However, as one of the limitations of this study, the proposal has not yet been piloted.

To validate the improvements suggested for overall sustainability, the proposal needs to be tested. For this, and for the immediate next steps, an action plan is proposed.

7.4 Closing Words

Building a process for supplier sustainability is a process of continuous improvement. The proposed process to include a supplier sustainability evaluation template as part of the existing supplier evaluation process is the first step in improving supplier sustainability. To improve sustainability in the case company and within its supply chain, further steps are necessary. This Thesis contributes to achieving the sustainability targets set by the case company by providing a tool to be implemented into the process. From there, the sustainability targets can be applied in the daily process and developed alongside other operations.

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Questions used in discussions and interviews (for Data 1 collection)

1. Is the current process mapped?

2. Are responsibilities and roles clearly defined?

3. Is sustainability part of the current process?

4. If yes, how?

5. What are the strengths and weaknesses?

6. What is the biggest risk in terms of sustainability in the current approach?

7. What kind of improvements would you suggest to the process?

8. Are there improvements in progress?

9. What tools you currently use?

10. Is the same process used for new and current suppliers?

Field notes, Data 1

TOPIC: Scoping of the Thesis

Details		The informant works in HQ of the case company	
Name (code) of the informant		Informant A	
Position in the case company		Head of Sustainability	
Date of the interview		2.11.2015	
Duration of the interview		90 minutes	
Document		Field notes	
Topics of the discussion		Issues	FIELD NOTES
1	**Starting point:**	***What is problem in the case company?***	The case company has 2 business units. The annual spend in procurement is approximately 2 billion euros. Both business units have one development person in the procurement who is responsible for producing the required sustainability information to the Head of Sustainability in HQ. There is a Sustainability team in HQ which is responsible for reporting and coordinating the sustainability actions in the case company. Currently, the case company lacks a clear structure of sustainability, especially from the supply chain perspective. The following functions related to sustainability should be built in into the current process: -life-cycle thinking -financial stability -auditing process -material regulation (conflict minerals). The challenge is, how to incorporate sustainability aspect into the current process. Sustainability should be built into the daily work in more efficient way. Currently, a clear objective is missing.
2	**Target:**	***What is the goal that want to be achieved whit this Thesis?***	Because sustainability audits are currently being conducted by HQ, the goal is to think how this could be implemented into the current process at the business units. In addition, one aspect could be to think is there a more efficient way to ensure sustainability at suppliers. How this could be implemented into current procurement functions?
3		***Other notions***	Currently, 3 suppliers have been audited by a third party. The plan is to audit 5 more suppliers within this year.

TOPIC: <u>Current state of Sustainability in the HQ</u>

Details		The informant works in HQ of the case company	
Name (code) of the informant		Informant A	
Position in the case company		Head of Sustainability	
Date of the interview		11.1.2016	
Duration of the interview		60 minutes	
Document		Field notes	
Topics of the discussion		QUESTIONS	FIELD NOTES
1	**Starting point:**	***What is currently happening in the field of sustainability in the case company?***	Currently, HQ is conducting third party sustainability audits. The entire supplier base, including both business units, is very vast. These sustainability audits have been conducted only to a few suppliers. Last year (2015) when this process was introduced, the audits have been conducted to 8 of the most risky suppliers recognized in the risk assessment. Based on the number of suppliers, this is not a sufficient measure, thus more suppliers should be audited on their sustainability. This brings up the question of the focus points of procurement. Currently, in both business units the driver for selecting and maintaining the supplier base are quality, service level and price. Sustainability aspects are not seen as an important driver.
2	**Future goal:**	***What is the HQ need and how sustainability would like to developed in the future?***	An important question is how environmental issues can be "sold" to the suppliers without compromising the strategic drivers. Suppliers should be motivated to take sustainability issues seriously and develop them. From HQ point of view, sustainability should be part of procurement and they should be able to provide the needed sustainability information of the suppliers to HQ.
3		***Other notions***	In order to figure out how sustainability can be implemented into the current practices, the different ways of operating need to be established. Currently, the processes are not clear to HQ.

TOPIC: <u>Further scoping of the Thesis</u>

Details		The informant works in HQ of the case company	
Name (code) of the informant		Informant A	
Position in the case company		Head of Sustainability	
Date of the interview		9.2.2016	
Duration of the interview		30 minutes	
Document		Field notes	
Topics of the discussion		Question	FIELD NOTES
1	**Scope of the work:**	***What should be included and how the subject should be approached?***	Sustainability is not just about complying with laws and legislations. Concrete ways of motivating suppliers to develop their operations should be pointed out. Questions regarding sustainability are currently included in the self-assessment form as well as in the third party audit form. These questions should be critically looked through. Regarding the self-assessment form, it should be stressed to the supplier that a "no" answer does not mean that they cannot be used as a supplier. When an understanding of the purpose of the self-assessment questions is established, the more reliable answers suppliers will provide. One aspect that would need attention is how the corrective action list formed on the basis of the third party audits can be included or informed to the business units. How to ease the follow-up process and ensure that the corrections are carried out in the given timeframe?
2	**Future goal:**	***What to establish with the work?***	The goal is to establish a concrete set of questions that could be implemented into the current process at the business units. This should also include a suggestion how to ensure that the required actions are take and operations is improved. Current processes include pre-audits, new supplier audits, and existing supplier audits both global and local. The thesis will focus on developing a process for the existing suppliers. The scope includes developing a basic level for sustainability evaluation. What is being evaluated in the audits and how is that verified as a corrective action should be determined. In addition, it should be considered whether both business units can be evaluated in the same manner.

3		***Other notions***	An easy and affordable methods should be established to educate the personnel on sustainability matters. Everyone should be able to detect basic level sustainability deficiencies when visiting suppliers. For example, when safety is not taken into consideration at the supplier, the costs from injuries might rise and service level be compromised. There are internal forums where sustainability issues could be integrated as a part of the agenda.

TOPIC: Current state of Sustainability in HQ

Details		The informant works in HQ of the case company	
Name (code) of the informant		Informant A	
Position in the case company		Head of Sustainability	
Date of the interview		24.2.2016	
Duration of the interview		60 minutes	
Document		Field notes	
Topics of the discussion		QUESTIONS	FIELD NOTES
1	**Starting point:**	***What is currently happening in the field of sustainability in the case company?***	Currently, the case company is using its Code of Conduct as the basis for its operation. Based on the Code of Conduct a sustainability manual for suppliers has been created. This includes a sustainable development criteria that the suppliers are expected to comply with. In addition to the written criteria, HQ is conducting sustainability audits to verify the compliance with the case company criteria and applicable laws and legislations. The most risky suppliers from safety perspective are in China and India.
2	**Future goal:**	***What is the HQ need and how sustainability would like to developed in the future?***	When it comes to selecting new suppliers, it should always be verified that their operations is according to law. In addition to this, they should comply the case company minimum safety requirements. Business units have asked for a list of actions, that suppliers cannot violate, e.g. when child labor is used, is an indication that the supplier should not be used. This list could be useful when suppliers are visited by persons who are not that educated in sustainability matters. When conducting the sustainability audits, a better system to verify that the needed actions pointed out in the audits have been carried out. This means that a better system for monitoring the actions should be implemented. Also the corrective actions should be categorized and time for implementing the corrections should be determined. The suppliers should strive towards continuous improvement in their operations. This would then hopefully improve also the sustainability matters. The case company could help in this process by sharing information and best practices and developing product safety together with the suppliers.
3		***Other notions***	A better training could be organized for both suppliers and internal personnel. Currently, sustainability is limited much to HSE issues, and that is emphasized in the internal training.

TOPIC: Current state of Sustainability in BU1

Details		The informant works in the BU1 of the case company	
Informant		Informant B	
Position in the case company		Supplier Quality Manager	
Date of the interview		8.2.2016	
Duration of the interview		90 minutes	
Document		Field notes	
Topics of the interview		QUESTIONS	FIELD NOTES
1	**Starting point:**	***Is the current supplier evaluation process mapped?*** ***Are roles and responsibilities clearly defined?***	A process for evaluating supplier exists and it is mapped. The current process does not include evaluation of sustainability of the suppliers. However, there are many practices currently in use, none of those have been formally documented as the process in use. The process for yearly audits and supplier selection a process is defined. Basically the interviewee is responsible for conducting the audits. However, the workload is divided with the Quality department.
2		***Is sustainability part of the current process?*** ***If yes, how?***	The process for new and existing suppliers is different. For exiting suppliers, sustainability is taken into account only via subjective evaluation while visiting the suppliers. The sustainability evaluation for existing suppliers conducted .during the yearly evaluation of the supplier does not have clear specifications. New suppliers sign the Code of Conduct where they declare that they are following the case company's requirements. Additionally, the supplier is evaluated on some of the sustainability themes during the first audit. This, however, concentrates on the documentation of sustainability practices. While visiting the supplier, some HSE issues can be observed at the factory.
3		***What tools are currently used?***	Currently the audit reports, and the sustainability questionnaire for new suppliers are documented in a global database. All the procurement and quality personnel of the business segment have access to this database. There is a shared online workspace, called Global Quality, but only selected personnel working with quality have access to this.
4	**Identify strengths**	**What are the strengths of the current process?**	The current process ensures that the supplier is performing in acceptable level. If more is required regarding sustainability, it will come at a price of something else.

5	**Identify problems**	***What are the weaknesses of the current process?***	The process does not include a formal sustainability aspects. However the interviewee does not see this as a weakness. As a weakness of the audit conducted by the 3rd party, a possibility that the supplier would be excluded from the supplier list. This is not however seen as a true risk, because the screening process for the potential suppliers is in place and capable of discarding truly unqualified suppliers.
6	**Development needs**	***What improvements would you suggest to the current process?***	It was recognized that more suppliers should be audited yearly. However, this action is in progress and existing resources are trained for this. The interviewee added, that if sustainability evaluation would be required from the BuS1 it could be executed with the existing resources.

TOPIC: <u>Current state of Sustainability in BU2</u>

Details		The informant works in the BU2 of the case company	
Informant		Informant C	
Position in the case company		Quality Manager	
Date of the interview		9.2.2016	
Duration of the interview		80 minutes	
Document		Field notes	
Topics of the interview		QUESTIONS	FIELD NOTES
1	**Starting point:**	***Is the current supplier evaluation process mapped?*** ***Are roles and responsibilities clearly defined?***	The current process is clear and the responsibilities are defined. The business segment is divided into 2 segments that both have responsible persons for supplier evaluations. The supplier evaluation is the responsibility of the Quality organization. However, quality personnel from local factories can be used when needed. Plan is to evaluate approximately 50 to 70 global suppliers yearly.
2		***Is sustainability part of the current process?*** ***If yes, how?***	There is no process for existing suppliers used in this location. New suppliers are required to fill in a self-assessment form, which is then approved by the person in charge of quality. This is a minimum requirement. The self-assessment form includes some sustainability related questions. Current supplier are not requested to answer the self-assessment form. There is no sustainability issues evaluated with the current suppliers.
3		***What tools are currently used?***	All the information is stored in pool4tool. Pool4tool is also the platform that suppliers use to fill in the self-assessment form. This tool is going to be used in the future as well.
4	**Identify strengths**	**What are the strengths of the current process?**	From the sustainability point of view, the self-assessment form already includes some sustainability related questions. For the new suppliers then at least some form of evaluation is made.
5	**Identify problems**	***What are the weaknesses of the current process?***	There are several local actions taken, but no global coherent actions or plans. Because sustainability is not monitored, the misconduct at the supplier can cause additional costs.
6	**Development needs**	***What improvements would you suggest to the current process?***	The self-assessment form is not yet finalized and it could be developed to include sustainability themes. In addition, yearly audits could include question about HSE issues. This, however, can't be made too heavy to implement in the current process.

TOPIC: <u>Current state of Sustainability in BU2</u>

Details		The informant works at HQ of the case company The informant works in the BU2 of the case company	
Informant		Informant A and E	
Positions in the case company		Head of Sustainability, HQ SVP Global Procurement, BU2	
Date of the interview		05.04.2016	
Duration of the interview		50 minutes	
Document		Field notes	
Topics of the interview		QUESTIONS	FIELD NOTES
1	**Starting point:**	***What is currently being done at BU2 regarding supplier evaluation?***	(interviewer: we're currently trying to determine the current process in BU2. So far it's still unclear) Having a process does not help. We either do or we don't, but having documents does not mean anything. With the limited resources we do what is necessary. If we're experiencing a major quality issue, that needs to be taken care of. What comes to sustainability at suppliers, I feel that the initial selection process is vital. That's where the matters should be looked that a horribly bad supplier is not selected. That is the easiest to tackle. As for the existing suppliers it's more footwork. The units are conducting approval audits for the potential suppliers. Basically they are looking that the suppliers comply with ISO9001. The issues is that if you don't have a thorough base process, it's impossible to add supporting functions to it. Currently we are not sure what actions are performed at what business line and to what extent. The same actions might possibly be conducted by different business lines day apart, because the provided tools are not used meticulously. When we get that implemented, we can actually follow the open actions and see who is doing what. Using the tool allows the supplier self-declarations as well. Self-declarations is of course only a first phase, then it needs to be decided how to process those. Currently, responsibilities are not clear. The common tool is being developed for other functions and then audits can be taken into consideration. I have seen a process for approving new suppliers, but it relates to financial checking of the supplier. I don't even think that process is working. Maybe audits should have different depths. What would be interesting to study, would be to take new suppliers from last year, the previous year or the year before that from India, Turkey, China and ask if we have audit reports for those. This information should be available from the country HOPs. I believe that BU1 has those (audit reports). BU2 might not even have a SOP for the audits. If there is something it

			could be entirely local, even location dependent. This is due to lack of any king of global process. The Quality Manager has been in that position for about six months and now trying to fix this issue. Quality function is in the supply chain at the business unit. This instruction should be drafted. However, issues should not be defined there. More effort should be used for doing, not drafting documents. No one monitors the documents, only what's being done matters. What bothers me is that we should be able to get reports from the system we're currently building for global use. The quality function in that tool has been in use for a month now. We're currently trying monitor how the tool is being used.

Field notes, Data 2

TOPIC: <u>Building the proposal, HQ input</u>

Details		The informant works in HQ of the case company	
Name (code) of the informant		Informant A	
Position in the case company		Head of Sustainability	
Date of the interview		30.3.2016	
Duration of the interview		70 minutes	
Document		Field notes	
Topics of the discussion		Question	FIELD NOTES
1	**Scope of the work:**	***Why is this important?***	There's a confusion on where the responsibility of conducting the sustainability audits lie. Procurement should bear the cost, when currently the audits are paid by HQ. This is justified, because HQ does not have contacts to the suppliers. However, this calls for training for the employees of the case company. Currently all of the people visiting the suppliers and conducting the audits are not capable to evaluate the sustainability issues. Because currently the audits are paid by the strategy, they are not willing to pay for more than 15 per year. This is not a sufficient coverage of the whole supplier network. For this reason the issue should resolved in some other way.
2	**Future goal:**	***What should be included in the proposal?***	Because of the limited knowledge of the personnel, questions on sustainability issues to be included into the current process should be fairly simple. It is not the goal to train the personnel to be experts on sustainability matters since it is not the core competence of the case company. This does not mean that people couldn't make judgements on simple issues like HSE and product safety. Based on the result of the current state analysis, the most obvious part of the process is to include sustainability as part of the quality audits or procurement audit, depending what they are called in each of the business units. The target is that information could be more easily shared with the business units and HQ. This would also mean that when third party audits are conducted, the corrective actions could be followed up by the business units. This would mean that the country HOP's would be responsible for the actions taken. The questions that would be included would need to be explained to the auditor in such a manner that they would know exactly what is asked and what is needed. In addition, maybe a scoring system is also needed.

3		***Other notions***	HQ reports how matters are dealt within the whole organization. This means that the same issues should be somehow handled in the business units. The need for reporting comes from laws and regulations but in growing numbers other stakeholders are requiring it as well. The current third party audit includes an extensive list of corrective actions. This list should be developed further and the actions needed should somehow be categorized and prioritized. In addition, a timeline for implementing the corrective actions should be given. If the needed actions have not been taken, the supplier would undergo a new audit, and in worst case not be used as a supplier any more.

Field notes, Data 2

TOPIC: <u>Building the proposal, BU1 input</u>

Questions asked in the interview:

1. What are the most important areas of sustainability?
2. How does sustainability links to the strategy, corporate and sourcing level?
3. How sustainability evaluation could be conducted?

Details		The informant in BU1 at the case company	
Name (code) of the informant		Informant D	
Position in the case company		Quality Manager, Quality & HSE	
Date of the interview		14.4.2016	
Duration of the interview		50 minutes	
Document		Field notes	
Topics of the discussion		Question	FIELD NOTES
1	**CSR:**	***What aspects of sustainability are crucial?***	When planning the audit, issues with the suppliers are discussed. Most often the focus areas of the audits are very technical. The business unit uses what is called single source supplier. This means that the supplier sells the ready-made part for the case company. For this process the supplier may use its own supplier network. A big challenge is how to monitor these suppliers and ensure that the case company requirements are met. When dealing with big suppliers, this issues is not that critical because they are most often performing the work by themselves at their own premises. However, this issue comes very important when thinking about suppliers of components that are not seen that critical for the case company and maybe for this reason, and largely for cost saving reason, smaller and cheaper suppliers are being used. These smaller operators use sub-suppliers for manufacturing the ready-made part for the case company. Only the supplier of the case company is being audited and evaluated. The information where the material comes is not often available at the suppliers. I see it as most important to monitor the entire supply chain at the supplier. Our customers are requiring a lot from us on this front. Maybe from lack of resources or other factors we are however not able to demand this same from our suppliers. We should be able to demand this from our suppliers. They should somehow score their suppliers, audit and evaluate and prove that they also have processes for monitoring the suppliers. And that they would be able to also provide evidence of this when requested. At our main suppliers, of course there is a lot of room for improvement but I can honestly say that there's nothing

			that would violate our requirements. This is due to the good practice in our new supplier selection process. Secondly, what I have been thinking is work safety and the working conditions. Sometimes you can see that the suppliers have certificates provided by a local operator, who assures that certain local requirements are met. These certifications should not be trusted. LTIF figures are also almost impossible to obtain from the high risk counties. We cannot be sure that they offer health care, or even investigate accidents that occur in their premises. We do not have the possibility to interview the employees, usually only information is from management. Third, somewhat related to the supply chain management, is how the environmental impact could be evaluated. This related to the technical issues, for example, does the supplier have electricity available 24/7.Does supplier use chemicals? How do you dispose the chemicals? Do suppliers manage these issues? This is fairly important issue. It is always a "nice" topic to discuss about the use of child labor, but somehow you just want to believe that it is not that critical issue in our business. It is of course critical in the sense that you would interfere, but not in the sense that it would be a problem in our supplier network.
2	**Strategy:**	***How does this link to the strategy***	I have participated in auditing current suppliers. The link to our strategy might be more visible when actually searching for new suppliers. There, suppliers are excluded from the short list if they are not compliant with our strategy. There are few triggers that actually exclude, but does strategy actually guide the process. Does price, quality or other aspect weigh more than sustainability when selecting suppliers?
3	**Measuring:**	***How sustainability could be evaluated?***	The same diligence and management would be also required from our suppliers. This could be proven by requiring evidence of the sub-suppliers, how the sub-suppliers are being evaluated, e.g. price, quality, technical knowhow. Scoring, what KPI's are being used, and HSE issues as well. And also plans what the suppliers have done, which sub-suppliers have been audited, what are going to be audited. Work safe, a written manual, what is being followed. This would include the right to have work clothes, PPE's , health care and how it's organized, LTIF statistics and how the injuries have been analyzed. Environment effect. Calculation how much suppliers strain the environment with their business activities. Calculations of the environmental impact. Everywhere I have visited, it has been a matter of pride to mention that the employees take pleasure of the amount of overtime. That makes you think if the work is really volunteered or is there some sort of pressure from management. Getting the bottom of human rights issues would require a local person to investigate and interview the suppliers.

			If we very to actually demand improvements in sustainability issues for our supplier that would require investments and they would ask our participation, wat would our answer be? We have conducted business with the same suppliers for years. However, in the last couple years, the supplier base been has expanded with new players. This is a very good thing, maybe focusing couple hours on sustainability issues when conducting audits would be good, and doable with the existing resources. All of this could be done with minimal effort.

TOPIC: <u>Building the proposal, BU1 input</u>

Questions asked in the interview:

1. What are the most important areas of sustainability?
2. How does sustainability links to the strategy, corporate and sourcing level?
3. How sustainability evaluation could be conducted?

Details		The informant works in BU1 of the case company	
Name (code) of the informant		Informant B	
Position in the case company		Supplier Quality Manager	
Date of the interview		19.4.2016	
Duration of the interview		60 minutes	
Document		Field notes	
Topics of the discussion		Question	FIELD NOTES
1	**CSR:**	***What aspects of sustainability are crucial?***	The sustainability evaluation should be integrated into the current process. The evaluations should comply with the ISO 1400 and OHSAS requirements. What I find important is how chemicals are stored at the supplier. This is already something that is looked when conducting the factory tour. Other important are is the radioactivity of the parts. Third important are is PPE's. I find the documentation important, How sustainability issues have been reported, like statistics, LTIF and related reporting and how the incidents have been investigated and what are the improvement actions.
2	**Strategy:**	***How does this link to the strategy***	I guess the link comes more from the way people think and act. The everyday actions and communication.
3	**Measuring:**	***How sustainability could be evaluated?***	The evaluation can be scored. Maybe using scale from 1 to 5 could be used. Larger scale could create too big variation. Different kinds of KPI's could be used in order to prove the current situation. Regarding environmental issues, the amount of waste or CO2 emissions could be measures.

Field notes, Data 3

TOPIC: Feedback for the proposal

Details		The informant works at HQ of the case company
Name (code) of the informant		Informant A
Position in the case company		Head of Sustainability
Date of the interview		27.4.2016
Duration of the interview		60 minutes
Document		Field notes
Comments		FIELD NOTES
1	**Overall:**	The persons interviewed for proposal building are the right people to give comments to the points that need to be audited. There are of course outside reporting need that require certain topics to be covered. They are however more on the "upper level", They more often as how many suppliers have been evaluated rather than on what were the questions. So basically it is entirely up to us what we want to ask from the suppliers. Otherwise the proposal looks good! The evaluation needs to be something like this, pretty basic. It would be great if this would actually be implemented in the business units. Especially in a matter that the actions could be tracked. Not of course in the manner that the responsibility of this would be at HQ! Just the overall picture reported to HQ (what has been done, how many suppliers have been audited, what are the next actions). The template gives a good overview of the situation at the supplier. Good that all the categories are covered. It's good that the template has information about what kind of evidence is needed, this will teach the auditors as well what kind of information HQ needs from the audits. The basic elements are there, but if needed some questions might be changes, or the phrasing might be changed. Otherwise the number of questions is sufficient and the coverage of the categories.
2	**Improvement:**	It would be good to add explanations and guidance for the questions and scoring. If there are questions that are not crucial when deficiencies are discover, how long the supplier have time to fix the issue. The same for the scoring, e.g. if supplier has process but it's not used, the score is …In addition, the instruction should indicate which areas are vital and if deficiencies are detected, the relationship with the supplier should be terminated. The company's HSE team good evaluate the template as well because they have planned to conduct their own audits. Their focus is of course slightly different.
3	**Other notions:**	Can these same question be used wider and extended to be used in the new supplier selection process? One problem still remains and that is the lack of joint system to store the audit info. This makes the following what has been done more difficult. Support and guidance would of course still be available from HQ, but the actions and decision responsibility would be at the business units. So we can present that here is the tool (template), the instruction how to use it for evaluating, and then we can organize training for the personnel on the themes covered in the template.

TOPIC: Feedback for the proposal

Details		The informant works at BU1 at the case company
Name (code) of the informant		Informant B
Position in the case company		Supplier Quality Manager
Date of the interview		28.4.2016
Duration of the interview		80 minutes
Document		Field notes
Comments		FIELD NOTES
1	**Overall:**	I did not look too closely to the scoring, but I think that it might need to be clarified what is meant in each score. The current HSE questionnaire should be compared to the template questions so that there will be only one set of questions. If we're talking about a global system, it would be ideal build the evaluation in the IT system that is planned to be implemented into the business unit. However, this system cannot be extended to be used in all areas, but in this matter, the same system that is used in BU2 could be utilized in supplier audits. Using the same system could motivate the other business unit to implement the template in their operation as well. If the supplier would score 5 in the second question in HSE, I would like to see that they have KPI's regarding safety. Third, fourth and fifth questions are good. They are lacking from the existing questionnaires. Actually, little odd that they are missing. Those areas are often the ones that suppliers have deficiencies. Questions in SCM category are okay. What does SCM stand for? (interviewer: It means *supply chain management*.) In compliance, when it's asked if employees are trained for anti-corruption, we can of course see training records, but this cannot be verified any better. Of course if records exists, the supplier should score 5 from this question. Do we have our own training? Policies we have. (interviewer: we have an online training, all employees have had to take it..) Okay, maybe the training should be organized more often. (interviewer: maybe this should be mandatory for all the new employees.) This just creates a dislike that we require something from the supplier that we do not have ourselves. (interviewer: some companies actually report the amount of personnel that's been trained for anti-corruption during each year.) I really like the second question in Compliance category. This is not usually audited and for this reason I must say that I really like this question. This is risk management issue. "Does supplier use child labor" is a mandatory question. You get a fair understanding during the factory visit. (interviewer: of course the scoring from 0 to 5 is not really applicable) Basically the scoring is on/off. If you see children, it's 0, if not it's 5. (interviewer: Scoring three could be that HR issues need to be investigated more thoroughly, possibly by a third party.) Some of the other question are similar, that the whole score range is not applicable. If the supplier scores 0 from any category, that is a severe deficiency. (interviewer: well we do not require all of these so the supplier can score 0 without that we need to terminate the relationship) Question about radiation measurement is standard question in audits. Same for the process for handling hazardous material.

		The structure of the template is good. I can then comment on the scoring. When you start writing the evaluation for each score, you start seeing if the range is good. Score from zero to five sound good.
2	**Improvement:**	The second question in HSE category you mention LTIF figure. I would not stress this matter, instead I would ask for how incidents are monitored and what the corrective actions are. In addition, it is more important than LTIF.LTIF is probably not available at any supplier. Could the score have weighting? Maybe then the score would be more informative.
3	**Other notions:**	Questions about the chemical storage is not in this suggestion. (interviewer: However, this in included in the "Product stewardship" category.) In the forced labor question, does that mean that workers are demanded in dormitories? (interviewer: no the question is formulated correctly. We of course allow the dormitories, the focus is that the employees are not forced to live in them and they are allowed to move freely.) Okay, this is very difficult to investigate. Well maybe you can check if there are cars and bikes in the yard. If not then probably they are not going anywhere. Question about radiation measurement is not relevant for all suppliers. Suppliers are not required to conduct measurement by themselves when they use raw material suppliers who ensure that the material is radiation free. For example foundries are required to perform the measurement. The template of course should be piloted and I think that we can fit this into this year's plan. I want to combine the existing HSE questionnaire with this somehow. Either to add the existing question to this one or incorporate them with the questions in this template.

Instruction how to use the Supplier Sustainability Evaluation Template

(left out, confidential data)